

Fossilium Catalogus

II: Plantae.

Editus a
W. Jongmans.

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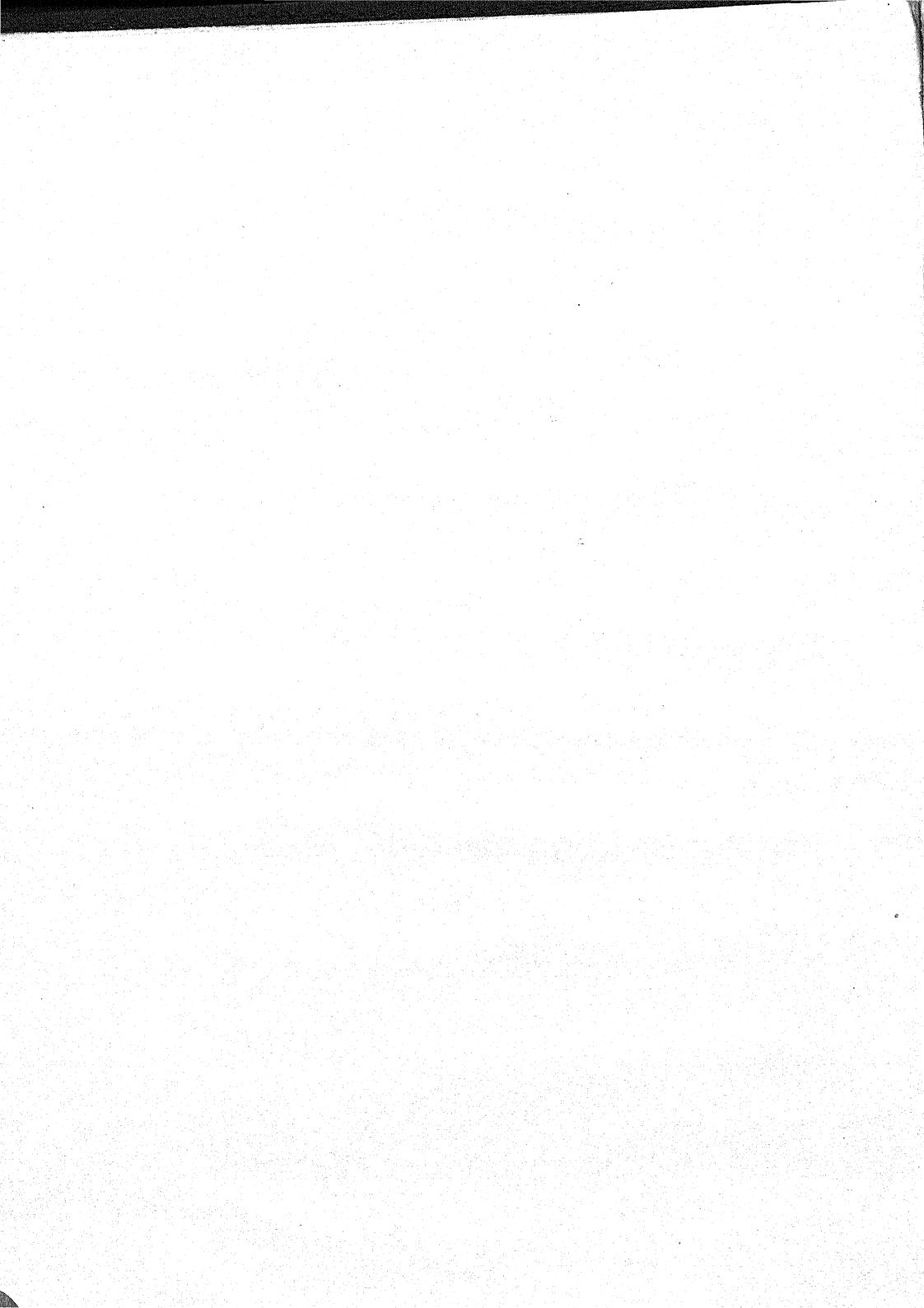
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Sapindaceae.



W. Junk
Berlin W 15
1928





Sapindaceae.

Foreword.

The family Sapindaceae includes about 130 living genera and well over a thousand species, occurring mainly in tropical and subtropical regions. Of these genera (apart from 14 recent species, belonging to 9 genera, from an African basalt-tuff of unknown age, but probably not very old) only 11 have been recorded in the fossil state, and several of these are not very well grounded. In addition, 21 form genera have been created for sapindaceous fossils which are either extinct or of more or less doubtful identification. A short review of the fossil genera is given by Berry, 1916 (pp. 106-8). Radlkofer and other authors have drawn attention to the possibilities of confusion with other families, such as the Meliaceae, Anacardiaceae, and Juglandaceae.

The present catalogue follows on general lines the arrangement of earlier parts of the Fossilium Catalogus, and the genera are given in strictly alphabetical order. Entries under each species are in chronological order. The synonymies, however, do not include complete references; these are arranged under authors' names in the bibliography, and may be found by means of the index date.

Thus, "1860 *Cupania grandis* Unger, p. 36 . . ." implies that the first reference or description of this species will be found in Unger 1860 on the page given. Subsequent references under the same name are cited thus:

"1861 *Cupania grandis* Unger: Ettinghausen, p. 244." When the generic name is changed, the reference is given thus:

"1874 *Cupanites grandis* (Unger) Schimper, p. 171", implying that Schimper was the authority for the change of name, and subsequent citations under the new name are in this form:

"1888 *Cupanites grandis* (Unger): Schenk, p. 548."

When two or more papers by the same author have been published in one year, they are distinguished by the addition of letters, thus: 1870, 1870a, 1870b, and so on.

Synonyms, *nomina nuda*, names of species which have been transferred to other families, and misidentifications are enclosed in square brackets. There is no special list of sapindaceous fossils originally referred to other families; these can be adequately traced by means of the index.

No attempt has been made to deal with all the species critically; occasional comments will be found, but the absence of critical remarks by no means implies that we accept the determinations.

In recording the distribution, full particulars of localities are usually given in the case of uncommon species, but not always for the common and widely distributed forms. Fuller details of the American localities may be found in Knowlton's catalogue (1919). The age of all the plant-bearing beds has not been critically examined. As a general rule, the age given by the original author has been cited, if there is no commonly-accepted revision of his estimate.

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Bibliography.

Almera, J. 1897. Catalogo de la Flora Pliocena de los Alrededores de Barcelona. Bol. Com. Mapa Geol. Espana, XXII, pp. 145—171.

— 1898. Compte rendu de l'Excursion du 28 Septembre à Sans et à Montjuich. Bull. Soc. Géol. France, (3), XXVI, pp. 680—689.

Andrae, K. J. 1855. Beiträge zur Kenntnis der fossilen Flora Siebenbürgens und des Banates. Abh. Geol. Reichsanst. Wien, II, 3, 4, pp. 1—48, pls. I—XII.

— 1861. Ein neuer Beitrag zur Kenntnis der Tertiärflora Siebenbürgens. Abh. Nat. Ver. Sachsen & Thüringen, Halle, II, pp. 429—434, pl. I.

Andrews, K. 1908. Note sur la flore fossile du Soleil-Levant (Lausanne). Bull. Soc. Vaud. Sci. Nat., XLIV, pp. 219—221.

Bayer, E. 1901. See Fritsch.

— 1920. Phytopalaeontologische Beiträge zur Kenntnis der Perucer Kreideschichten in Böhmen. Archiv naturw. Landesdurchforsch. Böhmk., XV, 5, pp. 1—78.

Berger, L. G. den. 1923. Fossiele Houtsoorten uit het Tertiair van Zuid-Sumatra. Verh. Geol. Mijnb. Gen. Nederland en Kol., VII, pp. 143—148.

Berry, E. W. 1903. The Flora of the Matawan Formation, Crosswicks clays. Bull. N. Y. Bot. Gard., III, pp. 45—103, pls. XLIII—LVII.

— 1904. Additions to the Flora of the Matawan Formation. Bull. Torrey Bot. Club, XXXI, pp. 67—82, pls. I—V.

— 1906. The Flora of the Cliffwood clays. N. J. Geol. Surv. Ann. Rept. 1905, pp. 135—172, pls. XIX—XXVI.

— 1910. A Revision of the Fossil Plants of the Genera *Acrostichopteris*, *Taeniopteris*, *Nilssonia*, and *Sapindopsis* from the Potomac Group. Proc. U. S. Nat. Mus., XXXVIII, pp. 625—44.

— 1911. (Sections on fossil plants). In Maryland Geol. Surv., Lower Cretaceous, pp. 99—172, 214—508, pls. XXII—XCVII.

— 1912. Contributions to the Mesozoic Flora of the Atlantic Coastal Plain — VIII, Texas. Bull. Torrey Bot. Club, XXXIX, pp. 387—406, pls. XXX—XXXII.

— 1914. The Upper Cretaceous and Eocene Floras of South Carolina and Georgia. U. S. Geol. Surv. Prof. Paper 84, 200 pp., XXIX pls.

— 1916. The Lower Eocene Floras of Southeastern North America. U. S. Geol. Surv. Prof. Paper 91, 481 pp., CXVII pls.

— 1917. Geologic History indicated by the Fossiliferous Deposits of the Wilcox Group (Eocene) at Meridian, Mississippi. U. S. Geol. Surv. Prof. Paper 108 E, pp. 61—67, pls. XXIV—XXVI.

- 1917 a. Contributions to the Mesozoic Flora of the Atlantic Coastal Plain — XII, Arkansas. Bull. Torrey Bot. Club, XLIV, pp. 167—190, pl. VII.
- 1918. Fossil Plants from the late Tertiary of Oklahoma. Proc. U. S. Nat. Mus., LIV, pp. 627—636, pls. XCIV, XCV.
- 1918a. The Fossil Higher Plants from the Canal Zone. Bull. U. S. Nat. Mus., CIII, pp. 15—44, pls. XII—XVIII.
- 1919. Upper Cretaceous Floras of the Eastern Gulf Region in Tennessee, Mississippi, Alabama, and Georgia. U. S. Geol. Surv. Prof. Paper 112, 177 pp., XXXIII pls.
- 1921. Tertiary Fossil Plants from the Dominican Republic. Proc. U. S. Nat. Mus., LIX, pp. 117—127, pl. XXI.
- 1922. Contributions to the Paleobotany of Peru, Bolivia and Chile. Johns Hopkins Univ. Studies in Geol., IV, 220 pp., XXV pls.
- 1922a. The Flora of the Woodbine Sand at Arthurs Bluff, Texas. U. S. Geol. Surv. Prof. Paper 129 G, pp. 153—180, pls. XXXVI—XL.
- 1922b. The Flora of the Cheyenne Sandstone of Kansas. U. S. Geol. Surv. Prof. Paper 129 I, pp. 199—231, pls. XLVII—LXI.
- 1922c. Additions to the Flora of the Wilcox Group. U. S. Geol. Surv. Prof. Paper 131 A, pp. 1—21, pls. I—XVIII.
- 1922. See Singewald.
- 1924. The Middle and Upper Eocene Floras of Southeastern North America. U. S. Geol. Surv. Prof. Paper 92, 206 pp., LXV pls.
- 1924a. An Early Eocene Florule from Central Texas. U. S. Geol. Surv. Prof. Paper 132 E, pp. 87—92, pl. XXIII.
- 1924. See Hollick.
- 1925. A Miocene Flora from Patagonia. Johns Hopkins Univ. Studies in Geol., VI, pp. 183—250, pls. I—IX.
- 1926. Cocos and Phymatocaryon in the Pliocene of New Zealand. Amer. Journ. Sci. (5) XII, pp. 181—184.
- 1927. Petrified Fruits and Seeds from Oligocene of Peru. Pan-Amer. Geol., XLVII, 2, pp. 121—132, pl. XIX.
- Bleicher, G. 1890. See Mieg.
- & Flliche, P. 1892. Contribution à l'Etude du Terrain Tertiaire d'Alsace. Bull. Soc. Géol. France, (3), XX, pp. 175—210.
- Boulay, N. 1887. Notice sur la Flore Tertiaire des Environs de Privas (Ardèche). Bull. Soc. Bot. France, XXXIV, pp. 227—239, 255—279.
- Bowerbank, J. S. 1840. History of the Fossil Fruits and Seeds of the London Clay. 144 pp., XVII pls. London.
- Brabeneck, F. 1904. Ueber einen neuen Fundort von tertiären Pflanzen in der unteren Zone der Saazer Schichten. Bull. Int. Acad. Sci. Prague, IX, 2, pp. 1—5, I pl.
- Braun, Al. 1836. See Buckland.
- 1845. Die Tertiär Flora von Oeningen. Neues Jahrb., pp. 164—173.
- 1850. See Brückmann.
- 1851. See Stizenberger.
- Bronniart, A. 1828. Prodrome d'une Histoire des Végétaux Fossiles. 223 pp. Paris.
- 1849. Tableau des genres de Végétaux Fossiles. (Extr. from Dict. Univ. d'Hist. Nat.). 127 pp. Paris.
- Brückmann. 1850. Flora Oeningensis Fossilis. Die Oeningen Steinbrüche, das Sammeln in denselben und die bis jetzt dort gefundenen Pflanzenreste. Jhft. Ver. vaterl. Nat. Würt-

temb., VI, pp. 215—238. (Note: This paper is frequently referred to by Heer, Schimper, and other authors as "Brückmann's Verzeichnis").

Buckland, W. 1836. Geology and Mineralogy considered with reference to Natural Theology. Vol. I, 600 pp. London.

Capellini, G. 1874. La Formazione Gessosa di Castellina Marittima. Mem. R. Acc. Sci. Ist. Bologna, (3) IV, pp. 525—603, pls. I—IX.

Cavara, F. 1887. Sulla Flora Fossile di Mongardino. Mem. R. Acc. Sci. Ist. Bologna (4) VIII, pp. 145—159, pls. IV—VI.

Chaney, R. W. 1921. A Fossil Flora from the Puente Formation of the Monterey Group. Amer. Journ. Sci., (5) II, pp. 90—92.

— 1922. Notes on the Flora of the Payette Formation. Amer. Journ. Sci. (5) IV, pp. 214—222.

Chapman, F. 1921. A Sketch of the Geological History of Australian Plants: The Cainozoic Flora. Victorian Nat., XXXVII, pp. 115—119, 127—133, pl. VIII.

Cockerell, T. D. A. 1908. The Fossil Flora of Florissant, Colorado. Bull. Amer. Mus. Nat. Hist., XXIV, pp. 71—110, pls. VI—X.

— 1908a. Florissant; a Miocene Pompeii. Pop. Sci. Monthly, LXIV, pp. 112—126.

— 1913. The Fauna of the Florissant (Colorado) Shales. Amer. Journ. Sci., (4), XXXVI, pp. 498—500.

— 1916. A Lower Cretaceous Flora in Colorado. Washington Acad. Sci. Journ., VI, pp. 109—112.

Colani, M. 1920. Etudes sur les flores tertiaires de quelques gisements de lignite de l'Indochine et du Yunnan. Bull. Serv. Géol. de l'Indochine, VIII, 1, 526 pp., XXX pls.

Crié, L. 1883. Sur les affinités des flores éocènes de l'ouest de la France et de l'Angleterre. C. R. Ac. Sci., XCVII, pp. 610—612.

— 1886. Contribution à l'étude des fruits fossiles de la flore éocène de la France occidentale. C. R. Ac. Sci., CIII, pp. 1143—4.

Dawson, J. W. 1879. List of Tertiary Plants from Localities in the Southern Part of British Columbia, with the Description of a New Species of *Equisetum*. Geol. Surv. Canada Progr. Rept. 1877—78, Appendix B, pp. 186 B—187 B.

— 1883. On the Cretaceous and Tertiary Floras of British Columbia and the North-West Territory. Trans. Roy. Soc. Canada, I, (IV), pp. 15—34.

— 1887. On the Fossil Plants of the Laramie Formation of Canada. Trans. Roy. Soc. Canada, IV, (IV), pp. 19—34, pls. I, II.

— 1888. Note on fossil woods and other plant remains from the Cretaceous and Laramie formations of the Western Territories of Canada. Trans. Roy. Soc. Canada, V, (IV), pp. 31—37.

Deane, H. 1902. Notes on Fossil Leaves from the Tertiary Deposits of Wingello and Bungonia. Rec. Geol. Surv. N. S. Wales, VII, pp. 59—65, pls. XV—XVII.

— 1902a. Notes on the Fossil Flora of Pitfield and Mornington. Rec. Geol. Surv. Victoria, I, pp. 15—20, pls. I, II.

— 1902b. Notes on the Fossil Flora of Berwick. Rec. Geol. Surv. Victoria, I, pp. 21—32, pls. III—VII.

— 1925. Tertiary Fossil Fruits from Deep Lead, Foster, South Gippsland. Rec. Geol. Surv. Victoria, IV, pp. 489—492, pl. LX.

De la Harpe, P. & Salter, J. W. 1862. Notes on the Eocene Flora of Alum Bay. In: Bristow, Geology of the Isle of Wight, Mem. Geol. Surv. Gt. Britain, pp. 109—120, pls. V—VII.

Delpape, G. 1922. Recherches sur la Flore Pliocène de la Vallée du Rhône. Ann. Sci. Nat. Bot., (X), IV, pp. 73—265, pls. I—XV.

Dowling, D. B. 1909. The Coalfields of Manitoba, Saskatchewan, Alberta and Eastern British Columbia. Geol. Surv. Canada Rept. 1035, 111 pp., XIII pls.

— 1910. The Edmonton Coal Field, Alberta. Geol. Surv. Canada Mem. 8 E, 59 pp.

Dreger, J. 1902. Die geologische Aufnahme der N. W. Section des Kartenblattes Marburg und die Schichten von Eibiswald in Steiermark. Verh. Geol. Reichsanst. Wien, pp. 85—104.

Duror, C. A. 1916. Report on the Flora of the Swauk Series. Journ. Geol., XXIV, pp. 570—580.

Edwards, W. N. 1927. The Occurrence of Koelreuteria (Sapindaceae) in Tertiary Rocks. Ann. Mag. Nat. Hist., (9) XX, pp. 109—112.

Engelhardt, H. 1869. Ueber die Tertiärfloren von Siefhennersdorf. Sitz. Nat. Ges. Isis, Dresden, pp. 151—152.

— 1870. Flora der Braunkohlenformation im Königreich Sachsen. Preisschr. Jablonowsk. Ges., XVI, pp. 1—69, atlas, XV pls.

— 1873. Die Tertiärfloren von Göhren. Nova Acta Acad. Caes. Leop.-Carol., XXXVI, pp. 1—42, pls. VIII—XIII.

— 1876. Tertiärpflanzen aus dem Leitmeritzer Mittelgebirge. Nova Acta Acad. Caes. Leop.-Carol., XXXVIII, pp. 343—418, pls. XVI—XXVII.

— 1879. Ein Beitrag zur Kenntnis der Flora des Thones von Preschen bei Bilin. Verh. Geol. Reichsanst. Wien, pp. 296—300.

— 1880. Ueber die Cyprisschiefer Nordböhmens und ihre pflanzlichen Einschlüsse. Sitz. Nat. Ges. Isis, Dresden, 1879, pp. 131—152, pls. VII—IX.

— 1881. Ueber die Fossilen Pflanzen des Süßwassersandsteins von Grasseth. Nova Acta Acad. Caes. Leop.-Carol., XLIII, pp. 275—324, pls. X—XXI.

— 1881a. Dritter Beitrag zur Kenntnis der Flora des Thones von Preschen bei Bilin. Verh. Geol. Reichsanst. Wien, pp. 154—155.

— 1885. Die Tertiärfloren des Jesuitengrabens bei Kundratitz in Nordböhmen. Nova Acta Acad. Caes. Leop.-Carol., XLVIII, pp. 299—408.

— 1890. Chilenische Tertiärpflanzen. Abh. Nat. Ges. Isis, Dresden, pp. 3—5.

— 1891. Ueber Tertiärpflanzen von Chile. Abh. Senckenb. Nat. Ges., XVI, pp. 629—692, pls. I—XIV.

— 1891a. Ueber fossile Pflanzen aus tertiären Tuffen Nordböhmens. Abh. Nat. Ges. Isis, Dresden, pp. 20—42, I pl.

— 1891b. Ueber Kreidepflanzen von Niederschöna. Sitz. Nat. Ges. Isis, Dresden, pp. 79—105, pl. II.

— 1891c. Ueber die Flora der über den Braunkohlen befindlichen Tertiärschichten von Dux. Nova Acta Acad. Caes. Leop.-Carol., LVII, pp. 129—219, pls. IV—XVIII.

— 1894. Flora aus den unteren Paludinenschichten des Caplagrabens bei Podvin in der Nähe von Brod (Slavonien). Abh. Senckenb. Nat. Ges., XVIII, pp. 169—207, pls. I—IX.

- 1895. Ueber neue Tertiärpflanzen Süd-Amerikas. Abh. Senckenb. Nat. Ges., XIX, pp. 1—47, pls. I—IX.
- 1896. Zur Kenntnis der Tertiärpflanzen von Sulloditz. Sitz. Nat.-med. Ver. Böhm. „Lotos“, pp. 147—183.
- 1898. Die Tertiärflora von Berand in Böhmischem Mittelgebirge. Abh. Ver. Lotos. Prag, I, pp. 75—123, pls. IX—XI.
- 1902. Ueber Tertiärpflanzen vom Himmelsberg bei Fulda. Abh. Senckenb. Nat. Ges., XX, pp. 251—305, pls. I—V.
- 1904. Beiträge zur Kenntnis der tertiären Flora der weiteren Umgebung von Dolnja Tuzla in Bosnien. Wiss. Mitt. Bosnien u. Herzegovina, IX, pp. 318—363, pls. LXXXVI—XCI.
- 1904a. Beitrag zur Kenntnis der Tertiärflora Bosniens und der Herzegovina. Wiss. Mitt. Bosnien u. Herzegovina, IX, pp. 386—406, pls. XCVI—XCVII.
- 1909. Tertiärpflanzen von Foëa in Südostbosnien. Wiss. Mitt. Bosnien u. Herzegovina, XI, pp. 491—498, pls. XXXVII—XXXVIII.
- 1910. Novi prilozi posnavanju fosilne tercijarne flore Bosne. Glasnik zemaljskog Muzeja u Bosni i Hercegovini, XXII, pp. 141—172, VI pls.
- 1910a. Prilog poznavanju fosilne flore iz Kumi. Glasnik zemaljskog Muzeja u Bosni i Hercegovini, XXII, pp. 671—683, II pls.
- 1911. Ueber tertiäre Pflanzenreste von Flörsheim am Main. Ueber tertiäre Pflanzenreste von Wieseck bei Giessen. Abh. Senckenb. Nat. Ges. XXIX, pp. 309—428, pls. 37—45.
- 1912. Neue Beiträge zur Kenntnis der fossilen Tertiärflora Bosniens. Wiss. Mitt. Bosnien u. Herzegovina, XII, pp. 604—637, pls. XXXII—XXXVII.
- 1913. Novi prinos poznavanju tercijarne flore Bosne. Glasnik zemaljskog Muzeja u Bosni i Hercegovini, XXV, pp. 383—395, pls. I, II.
- 1914. Die Tertiäre Kieselgur von Altenschlirf im Vogelsberg. Die Pflanzen. Abh. Geol. Landesanst. Darmstadt, V, pp. 265—317, pls. I—XVIII.
- 1922. Die Alttertiäre Flora von Messel bei Darmstadt. Abh. Geol. Landesanst. Darmstadt, VII, pp. 17—128, pls. I—XL.
- Ettingshausen, C. von. 1850. See Prinzinger.
- 1851. Die Tertiär Floren der Oesterreichischen Monarchie. I. Fossile Flore von Wien. Abh. Geol. Reichsanst. Wien, II, 3, 1, pp. 1—36, pls. I—V.
- 1851a. (Ueber die fossile Flora von Sagor in Krain). Jahrb. Geol. Reichsanst. Wien, II, 2, pp. 185—186.
- 1851b. Notiz über die fossile Flora von Wien. Jahrb. Geol. Reichsanst. Wien, II, 4, pp. 39—46.
- 1853. Die Tertiäre Flora von Häring in Tyrol. Abh. Geol. Reichsanst. Wien, II, 3, 2, pp. 1—118, pls. I—XXXI.
- 1854. Beitrag zur Kenntnis der fossilen Flora von Tokay. Sitzber. Ak. Wiss. Wien, XI, pp. 779—816, pls. I—IV.
- 1854a. Die Eocene Flora des Monte Promina. Denkschr. Ak. Wiss. Wien, VIII, pp. 17—44, pls. I—XIV.
- 1858. Beiträge zur Kenntnis der fossilen Flora von Sotzka in Untersteiermark. Sitzber. Ak. Wiss. Wien, XXVIII, pp. 471—567, pls. I—VI.
- 1861. Die Blatt-Skelete der Dikotyledonen. 308 pp., XCV pls. Wien.
- 1868. Die Fossile Flora der älteren Braunkohlenformation der Wetterau. Sitzber. Ak. Wiss. Wien, LVII, 1, pp. 807—893, pls. I—V.

- 1869. Die Fossile Flora des Tertiär-Beckens von Bilin. III. Denkschr. Ak. Wiss. Wien, pp. 1—110, pls. XL—LV.
- 1870. Beiträge zur Kenntnis der Tertiärfloren Steiermarks. Sitzber. Ak. Wiss. Wien, LX, 1, pp. 17—100, pls. I—VI.
- 1870a. Beiträge zur Kenntnis der fossilen Flora von Radoboj. Sitzber. Ak. Wiss. Wien, LXI, 1, pp. 829—906, pls. I—III.
- 1877. Die Fossile Flora von Sagor in Krain, Teil II. Denkschr. Ak. Wiss. Wien, XXXVII, pp. 161—216; pls. XI—XXVII.
- 1879. Report on the Phyto-Palaeontological Investigations of the Fossil Flora of Sheppey. Proc. Roy. Soc. London, XXIX, pp. 388—396.
- 1880. Report on Phyto-Palaeontological Investigations of the Fossil Flora of Alum Bay. Proc. Roy. Soc. London, XXX, pp. 228—236.
- 1883. Beiträge zur Kenntnis der Tertiärfloren Australiens, I. Denkschr. Ak. Wiss. Wien, XLVII, pp. 101—148, pls. I—VII.
- 1883a. A Contribution to the Tertiary Flora of Australia. Geol. Mag., (11) X, pp. 153—157.
- 1884. Zur Tertiärfloren von Borneo. Sitzber. Ak. Wiss. Wien, LXXXVIII, 1, pp. 372—384, I pl.
- 1885. Die Fossile Flora von Sagor in Krain, III. Denkschr. Ak. Wiss. Wien, L, pp. 1—56, pls. XXVIII—XXXII.
- 1886. Beiträge zur Kenntnis der Tertiärfloren Australiens, II. Denkschr. Ak. Wiss. Wien, LIII, pp. 81—142, pls. VIII—XV.
- 1887. Beiträge zur Kenntnis der Fossilen Flora Neuseelands. Denkschr. Ak. Wiss. Wien, LIII, pp. 143—192, pls. I—IX.
- 1888. Die Fossile Flora von Leoben in Steiermark. Denkschr. Ak. Wiss. Wien, LIV, 2, pp. 319—384, pls. V—IX.
- 1888a. Contributions to the Tertiary Flora of Australia, I, II. Mem. Geol. Surv. New South Wales (Palaeontology, 2), 189 pp. XV pls.
- 1890. Contributions to the Knowledge of the Fossil Flora of New Zealand. Trans. Proc. N. Z. Inst., XXIII, pp. 237—310, pls. XXIV—XXXII.
- 1893. Ueber Neue Pflanzenfossilien aus den Tertiärschichten Steiermarks. Denkschr. Ak. Wiss. Wien, LX, pp. 313—344, pls. I, II.
- 1896. Ueber Neue Pflanzenfossilien in der Radoboj-Sammlung der Universität Lüttich. Sitzber. Ak. Wiss. Wien, CV, 1, pp. 473—500, pls. I—V.
- Felix, J. 1882. Studien über Fossile Hölzer. Inaug. Diss., 81 pp. I pl. Leipzig.
- 1883. Die fossilen Hölzer Westindiens. Sammlung Pal. Abh. I. 29 pp. V pls.
- Fliche, F. 1890. See. Mieg.
- 1892. See Bleicher.
- Florin, R. 1919. Eine Uebersicht der fossilen *Salvinia*-Arten mit besonderer Berücksichtigung eines Fundes von *Salvinia formosa* Heer im Tertiär Japans. Bull. Geol. Inst. Upsala, XVI, pp. 243—260, pl. XI.
- Fontaine, W. M. 1889. The Potomac or Younger Mesozoic Flora. Mon. U. S. Geol. Surv., XV, XIV + 377 pp.; Atlas, CLXXX pls.
- 1899. Notes on Lower Cretaceous Plants from the Hay Creek Coalfield, Crook County, Wyoming. U. S. Geol. Surv., 19th Ann. Rept., 1897—98, pt. 2, pp. 645—702.
- 1905. See Ward, L. F.
- Friedrich, P. 1883. Beiträge zur Kenntnis der Tertiärfloren der Provinz Sachsen. Abh. Geol. Speciafk. Preuss., IV, 3, X + 305 pp., Atlas, XXXI pls.

Fritel, P. H. 1909. Révision de la Flore Fossile des Grès Yprésiens du Bassin de Paris. *Journ. Botanique* (2) II, pp. (86—91, 101—112, 149—169) 249—268.

— 1921. Contribution à l'étude des Flores Tertiaires d'après les matériaux du Muséum d'Histoire Naturelle, III. *Bull. Mus. Hist. Nat. Paris*, XXVII, pp. 471—475.

— 1922. Contribution à l'étude des Flores Tertiaires d'après les matériaux du Muséum d'Histoire Naturelle, IV. *Bull. Mus. Hist. Nat. Paris*, XXVIII, pp. 123—128.

Fritsch, A. & Bayer, E. 1901. Studien im Gebiete der Böhmisichen Kreideformation. *Archiv Naturw. Landesforsch. Böhmk.*, XI, 2, pp. 1—180.

Gaudin, C. T. & Strozzi, C. 1858. Mémoire sur quelques Gisements de Feuilles Fossiles de la Toscane. *N. Denkschr. Schweiz. Ges. Nat.*, XVI, 3, 47 pp., XIII pls.

— 1864. Contributions à la Flore Fossile Italienne, VI. *N. Denkschr. Schweiz. Ges. Nat.*, XX, pp. 1—31, pls. I—IV.

Gervais, P. 1863. Sur les Empreintes végétales trouvées à Armissan. *Mém. Acad. Sci. Montpellier*, V, pp. 309—24, pls. X, XI.

Geyler, T. H. 1874. Ueber die Tertiärfloren von Stadecken-Elsheim in Rheinhessen. *Ber. Senckenb. Nat. Ges.*, pp. 103—123.

— 1877. Ueber fossile Pflanzen von Borneo. *Palaeontographica*, Suppl. III, 1, pp. 61—84, pls. XI—XII.

Halavats, J. 1883. Die pontische Fauna von Langenfeld. *Mitt. Jahrb. Ungar. Geol. Anst.*, VI, pp. 163—173.

Hauer, Fr. von. 1879. Einsendungen aus Bosnien. *Verh. Geol. Reichsaust. Wien*, pp. 170—171.

Heer, O. 1853. Uebersicht der Tertiärfloren der Schweiz. *Mitt. Nat. Ges. Zürich*, III, pp. 88—153.

— 1856. Flora Tertiaria Helvetiae, II. 110 pp., pls. LI—C. Winterthur.

— 1856a. Entdeckung fossiler Pflanzen in Locle. *Vierteljahrssber. Nat. Ges. Zürich*, I, pp. 92—95.

— 1859. Flora Tertiaria Helvetiae, III. VI + 377 pp., pls. CI—CLVII. Winterthur.

— 1869. Ueber die Braunkohlenpflanzen von Bornstadt. *Abh. Nat. Ges. Halle*, XI, pp. 1—22, pls. I—IV.

— 1869a. Miocene baltische Flora. *Beitr. Naturk. Preuss.*, II, 104 pp., XXX pls.

— 1872. Vorläufige Bemerkungen über die Kreideflora Nordgrönlands, gegründet auf die Entdeckungen der schwedischen Expedition vom Jahre 1870. *Zeitschr. deutsch. Geol. Ges.*, XXIV, pp. 155—164.

— 1874. Die Kreide-Flora der Arctischen Zone. *K. Svensk. Vet. Akad. Handl.*, XII, 6, 140 pp. XXXVIII pls. (*Fl. Foss. Arctica*, III).

— 1874a. Ueber fossile Pflanzen von Sumatra. *Abh. Schweiz. Paläont. Ges.*, I, pp. 1—26, III pls.

— 1876. Beiträge zur Fossilien Flora Spitzbergens. *K. Svensk. Vet. Akad. Handl.*, XIV, pp. 1—141, pls. I—XXXII. (*Fl. Foss. Arctica*, IV).

— 1877. Flora Fossilis Helvetiae, III. pp. 101—182, pls. XLV—LXX. Zürich.

— 1878. Miocene Flora der Insel Sachalin. *Mém. Acad. Imp. Sci. St. Pétersbourg*, XXV, pp. 1—61, pls. I—XV (*Fl. Fossilis Arctica*, V).

— 1881. Contributions à la Flore Fossile du Portugal. XIV + 54 pp., XXVIII pls., Lisbon.

- 1881a. Beiträge zur Fossilen Flora von Sumatra. N. Denkschr. Schweiz. Ges. Nat., XXVIII, pp. 1—22, pls. I—VI.
- 1882. Die Fossile Flora Grönlands. I. Fl. Foss. Arctica, VI, 2, VIII + 112 pp., XLVII pls. Zürich.
- 1883. Die Fossile Flora Grönlands, II, 1, Die Flora der Patootschichten. Fl. Foss. Arctica, VII, pp. 1—46, pls. XLVIII—LXV. Zürich.
- 1883a. Die Fossile Flora Grönlands, II, 2, Die Tertiäre Flora von Grönland. Fl. Foss. Arctica, VII, pp. 47—142, pls. LXVI—CIX. Zürich.
- Hitchcock, E. 1853. Description of a Brown Coal Deposit in Brandon, Vermont, with an attempt to determine the Geological Age of the Principal Hematite Ore Beds in the United States. Amer. Journ. Sci., (2), XV, pp. 95—104, figs. 1—20.
- Hofmann, E. 1926. Inkohlte Pflanzenreste aus dem Tertiär von St. Kathrein am Hauenstein. Berg u. Hüttenmänn. Jahrb., LXXIV, pp. 152—162, 17 figs.
- Hofmann, K. 1870. Das Kohlenbecken des Zsily-Thales in Siebenbürgen. Jahrb. Geol. Reichsanst. Wien, XX, pp. 523—530. Translation by Th. Fuchs from Magyar Foldtani Tar-sulat, V, 1870, pp. 1—57.
- Hollick, A. 1892. The Palaeontology of the Cretaceous Formation on Staten Island. Trans. New York Acad. Sci., XI, pp. 96—104, IV pls.
- 1893. Preliminary Contribution to our Knowledge of the Cretaceous Formation on Long Island and Eastward. Trans. New York Acad. Sci., XII, pp. 222—237, pls. V—VII.
- 1894. Fossil Salvinias, including Description of a new Species. Bull. Torrey Bot. Club, XXI, pp. 253—257, pl. CCV.
- 1894a. Additions to the Palaeobotany of the Cretaceous Formation on Long Island. Bull. Torrey Bot. Club, XXI, pp. 49—65, pls. CLXXXIV—CLXXX.
- 1898. Additions to the Palaeobotany of the Cretaceous Formation on Staten Island, II. Ann. New York Acad. Sci., XI, pp. 415—430, pls. XXXVI—XXXVIII.
- 1898a. The Cretaceous Clay marl Exposure at Cliffwood, N. J. Trans. New York Acad. Sci., XVI, pp. 124—137, pls. XI—XIV.
- 1899. A Report on a Collection of Fossil Plants from north-western Louisiana. Geol. Surv. Louisiana, Special Rept., no. 5, pp. 276—288, pls. XXXII—XLVIII.
- 1904. Additions to the Palaeobotany of the Cretaceous Formation on Long Is'and, II. Bull. New York Bot. Gdn., III, pp. 403—418, pls. LXX—LXXIX.
- 1906. The Cretaceous Flora of Southern New York and New England. Mon. U. S. Geol. Surv., L, 219 pp., XL pls.
- 1906a. Systematic Palaeontology of the Pleistocene Deposits of Maryland: Pteridophyta and Spermatophyta. Maryland Geol. Surv., Pliocene & Pleistocene, pp. 217—237, pls. LXVII—LXXV.
- 1923. The Taxonomic and Morphologic Status of Ophioglossum allenii Lesquereux. Bull. Torrey Bot. Club, L, pp. 207—213, pls. X—XII.
- 1924. A Review of the Fossil Flora of the West Indies, with Descriptions of New Species. Bull. New York Bot. Gdn., XII, pp. 259—323, pls. I—XV.
- & Berry, E. W. 1924. A Late Tertiary Flora from Bahia, Brazil. Johns Hopkins Univ. Studies in Geol., V, 136 pp., XIII pls.

Johnston, R. M. 1880. Notes on the Relations of the Yellow Limestone (Travertine) of Geilston Bay. *Papers & Proc. Roy. Soc. Tasmania*, 1879, pp. 81—90.

— 1882. Notes showing that the Estuary of the Derwent was occupied by a Freshwater Lake during the Tertiary Period. *Papers & Proc. Roy. Soc. Tasmania*, 1881, pp. 7—21, XI pls. unnumb.

— 1888. Geology of Tasmania. 408 pp., LVII pls. Hobart.

Jokely, J. 1862. *Pflanzenreste aus dem Basalttuffe von Alt-Warnsdorf in Nord-Böhmen*. *Jahrb. Geol. Reichsanst. Wien*, XII, pp. 379—381.

Kafka, J. 1911. Studien auf dem Gebiete der Tertiär-Formation Böhmens. *Archiv naturw. Landesdurchforsch. Böh.*, XIV, 4, 91 pp.

Kaiser, P. 1890. Die fossilen Laubhölzer. *Wiss. Beilage Jahresber. Realprogym. Schönebeck a. E.* 46 pp. Schönebeck.

Keller, R. 1892. Beiträge zur Tertiärflora des Kantons St. Gallen. *Ber. St. Gallischen Nat. Ges.*, 1890—91, pp. 82—117, pls. I—XV.

— 1895. Beiträge zur Tertiärflora des Kantons St. Gallen, Zweite Mitteilung. *Ber. St. Gallischen Nat. Ges.*, 1893—94, pp. 305—330, pls. I—XI.

— 1896. Beiträge zur Tertiärflora des Kantons St. Gallen, Dritte Mitteilung. *Ber. St. Gallischen Nat. Ges.*, 1894—95, pp. 297—324, pls. I—XI.

Kerner, F. 1902. Tertiärpflanzen vom Ostrand des Sinjsko Polje in Dalmatien. *Verh. Geol. Reichsanst. Wien*, pp. 342—344.

— 1906. Beiträge zur Kenntnis der fossilen Flora von Ruda in Mitteldalmatien. *Verh. Geol. Reichsanst. Wien*, pp. 68—70.

— 1907. Das kohlenführende Paläogen von Ruda in Mitteldalmatien. *Verh. Geol. Reichsanst. Wien*, pp. 134—157.

Knowlton, F. H. 1895. Report upon a Small Collection of Fossil Plants from Black Hills, near Belvidere, Kansas, collected by Prof. R. T. Hill in August 1894. *Amer. Journ. Sci.* (3) L, pp. 212—214.

— 1896. See Lindgren.

— 1897. See Stanton.

— 1898. A Catalogue of the Cretaceous and Tertiary Plants of North America. *Bull. U. S. Geol. Surv.*, 152, pp. 1—247.

— 1899. Fossil Flora of the Yellowstone National Park. *Mon. U. S. Geol. Surv.*, XXXII, 2, pp. 651—882, pls. LXXVII—CXXI.

— 1901. (Fossil Plants from Woodbine Formation). 21st Ann. Rep. U. S. Geol. Surv., pt. VII, p. 317.

— 1901a. Preliminary Report on the Fossil Flora of the John Day Basin, Oregon. In Merriam, J. C., *Bull. California Univ. Dept. Geol.*, II, pp. 308—309.

— 1902. Fossil Flora of the John Day Basin, Oregon. *Bull. U. S. Geol. Surv.*, CCIV, 153 pp., XVII pls.

— 1905. Fossil Plants of the Judith River Beds. *Bull. U. S. Geol. Surv.*, CCLVII, pp. 129—168, pls. XIV—XIX.

— 1908. (Identification of Fossil Plants from the Controller Bay Region, Alaska.). In Martin, G. C. *Bull. U. S. Geol. Surv.*, CCCXXXV, pp. 29, 34, 35, 39.

— 1908a. (Identifications of Fossil Plants from the Rangeley Oil District, Rio Blanco County, Colorado.). In Gale, H. S. *Bull. U. S. Geol. Surv.*, CCCL, p. 25.

— 1909. The Stratigraphic Relations and Palaeontology of the "Hell Creek beds", "Ceratops beds" and equivalents, and

their reference to the Fort Union Formation. Proc. Washington Acad. Sci., XI, pp. 179—238.

- 1911. Further Data on the Stratigraphic position of the Lance Formation ("Ceratops beds"). Journ. Geology, XIX, pp. 358—376.
- 1912. (Lists of Plants from the Lance Formation near Glendive, Montana). In Calvert, W. R., U. S. Geol. Surv. Bull. 471, pp. 195, 198, 426, 481.
- 1916. A Review of the Fossil Plants in the United States National Museum from the Florissant Lake Beds at Florissant, Colorado, with Descriptions of New Species and List of Type Specimens. Proc. U. S. Nat. Mus., LI, pp. 241—297, pls. XII—XXVII.
- 1917. Fossil Floras of the Vermejo and Raton Formation of Colorado and New Mexico. U. S. Geol. Surv. Prof. Paper 101, pp. 223—455. pls. XXX—CXIII.
- 1919. A Catalogue of the Mesozoic and Cenozoic Plants of North America. Bull. U. S. Geol. Surv. 696, 815 pp.
- 1920. A Dicotyledonous Flora in the Type Section of the Morrison Formation. Amer. Journ. Sci., (4), XLIX, pp. 189—194.
- 1923. Revision of the Flora of the Green River Formation with Descriptions of New Species. U. S. Geol. Surv. Prof. Paper 131 F, pp. 133—182, pls. XXXVI—XL.
- 1924. Flora of the Animas Formation. U. S. Geol. Surv. Prof. Paper 134, pp. 71—98, pls. V—XIX.
- Kovats, J. von. 1856. Fossile Flora von Erdöbénye. Arb. Geol. Ges. Ungarn, pp. 1—37, VII pls.
- 1856a. Fossile Flora von Tallya. Arb. Geol. Ges. Ungarn, pp. 39—52, I pl.
- Krassner, F. 1896. Beiträge zur Kenntnis der Fossilien Kreideflora von Kunstadt in Mähren. Beitr. Paläont. Geol. Oest.-Ung., X, 3, pp. 113—152, pls. XI—XVII.
- 1903. Konstantin von Ettingshausen's Studien über die fossile Flora von Ouricanga in Brasilien. Sitzber. Ak. Wiss. Wien, CXII, 1, pp. 852—860.
- 1906. Ueber die fossile Kreideflora von Grünbach in Niederösterreich. Anz. Ak. Wiss. Wien, XLIII, 3, pp. 41—43.
- Kräuse, R. 1922. Fossile Hölzer aus dem Tertiär von Süd-Sumatra. Verh. Geol. Mijnb. Gen. Nederland en Kol., V, pp. 231—287, pls. I—VII.
- 1925. Der Stand unserer Kenntnisse von der Tertiärflora Niederlandisch-Indiens. Verh. Geol. Mijnb. Gen. Nederland en Kol., VIII, pp. 329—342.
- Kryshkofovich, A. 1914. Les dernières découvertes des restes des flores sarmatique et méotique dans la Russie méridionale. (In Russ.ian). Bull. Ac. Imp. Sci. St. Pétersbourg, (6), VIII, pp. 591—602, I pl.
- Laubé, G. C. 1880. Pflanzenreste aus dem Diatomaceenschiefer in Sulloditz im böhm. Mittelgebirge. Verh. Geol. Reichsanst. Wien, pp. 277—278.
- Lauby, A. 1908. Découverte de plantes fossiles dans les terrains volcaniques de l'Aubrac. C. R. Ac. Sci., CXLVII, pp. 154—157.
- 1910. Recherches Paléophytologiques dans le Massif Central. Bull. Serv. Carte Géol. France, XX, no. 125, 1909—1910, 398 pp., XV pls.
- Laurent, L. 1898. See Marion.
- 1899. Flore des Calcaires de Célas. Ann. Mus. Hist. Nat. Marseille, (2), I, 2, pp. 1—148, pls. I—XIV.

- 1905. Flore Pliocène des Cinérites du Pas-de-la Mougudo et de Saint-Vincent-la Sabie (Cantal). Ann. Mus. Hist. Nat. Marseille, IX, pp. 1—313, pls. I—XX.
- 1912. Flore Fossile des Schistes de Menat. Ann. Mus. Hist. Nat. Marseille, XIV, 246 pp., XVII pls.
- Leonard, A. G. 1908. The Geology of Southwestern North Dakota with Special Reference to Coal. North Dakota Geol. Surv., 5th. Bienn. Rept., pp. 27—114.
- 1911. The Cretaceous and Tertiary Formations of Western North Dakota and Eastern Montana. Journ. Geology, XIX, pp. 507—547. (Plants by Knowlton, p. 541).
- Lesquereux, L. 1861. On the Fossil Fruits found in Connection with the Lignites of Brandon, Vermont. Amer. Journ. Sci., (2) XXXII, pp. 355—363.
- 1861a. On the Fossil Fruits found in Connection with the Lignites of Brandon, Vermont. (Reprint of Lesquereux 1861). In Hitchcock etc. Geology of Vermont, II, pp. 712—718; figs. 111—160 in vol. I, on pp. 229—282.
- 1869. Specimens of Fossil Plants from the Tertiary of the State of Mississippi. Trans. Amer. Phil. Soc., XIII, pp. 411—433, pls. XIV—XXIII.
- 1872. An Enumeration with Descriptions of some Tertiary Fossil Plants, from specimens procured in the Explorations of Dr. F. V. Hayden, in 1870. U. S. Geol. Surv. Terr., 5th. Ann. Rept. 1871, Suppl. 22 pp.
- 1873. Lignite Formation and Fossil Flora. U. S. Geol. Surv. Terr., 6th. Ann. Rept., pp. 317—427.
- 1874. The Lignite Formation and Its Fossil Flora. U. S. Geol. & Geogr. Surv. Terr., Ann. Rept. 1873, pp. 365—425.
- 1876. On the Tertiary Flora of the North American Lignite, considered as evidence of the age of the Formation. U. S. Geol. & Geogr. Surv. Terr., Ann. Rept., 1874, pp. 271—315.
- 1876a. On Some New Species of Fossil Plants from the Lignite Formations. Bull. U. S. Geol. & Geogr. Surv. Terr., I, pp. 363—389.
- 1878. Report on the Fossil Plants of the Auriferous Gravel Deposits of the Sierra Nevada. Mem. Mus. Comp. Zool., VI, 2, pp. 1—62, pls. I—X.
- 1878a. Contributions to the Fossil Flora of the Western Territories, II, The Tertiary Flora. U. S. Geol. Surv. Terr. Rept., VII, 366 pp., LXV pls.
- 1878b. Illustration of Cretaceous and Tertiary Plants. XXVI pls. (no text; names by Lesquereux). U. S. Geol. & Geogr. Surv. Terr. (Afterwards revised and included in Newberry 1898). [Not seen].
- 1883. Contributions to the Fossil Flora of the Western Territories, III, The Cretaceous and Tertiary Floras. U. S. Geol. Surv. Terr. Rept., VIII, 283 pp., LIX pls.
- 1888. Recent Determinations of Fossil Plants from Kentucky, Louisiana, Oregon, California, Alaska, Greenland etc. with Descriptions of New Species. Proc. U. S. Nat. Mus., XI, pp. 11—38, pls. IV—XVI.
- 1892. The Flora of the Dakota Group; a posthumous work, edited by F. H. Knowlton. Mon. U. S. Geol. Surv., XVII, 1891, 400 pp., LXVI pls.
- 1895. Cretaceous Fossil Plants from Minnesota. Geol. Nat. Hist. Surv. Minnesota, III, 1, pp. 1—22, pls. A, B.
- Lindgren, W. & Knowlton, F. H. 1896. The Age of the Auriferous Gravels of the Sierra Nevada, With a Report on

the Flora of Independence Hill. *Journ. Geology*, IV, pp. 881—906.

Ludwig, R. 1858. Fossile Pflanzen aus der mittlern Etage der Wetterau-Rheinischen Tertiär Formation. *Palaeontogr.*, V, pp. 132—151, pls. XXVII—XXXIII (f. 6).

— 1858a. Fossile Pflanzen aus dem Basalt-Tuffe von Holzhausen, bei Homberg in Kurhessen. *Palaeontogr.*, V, pp. 152—167, pls. XXXIII (f. 7) — XXXV.

— 1860. Fossile Pflanzen aus der ältesten Abtheilung der Rheinisch-Wetterauer Tertiär-Formation. *Palaeontogr.*, VIII, pp. 39—154, pls. VI—LX.

Lugeon, M. 1888. La Molasse de la Borde. *Bull. Soc. Vaud. Sci. Nat.*, XXIII, pp. 173—5, pl. IX.

Marion, A. F. 1890. Sur la flore turonienne des Martigues (Bouches-du-Rhône). *C. R. Ac. Sci. Paris*, CX, pp. 1052—1055.

— & Laurent, L. 1898. Examen d'une Collection de Végétaux Fossiles de Roumanie. *Anuar. Mus. Geol. Paleont. Bucuresci* 1895, pp. 186—229, pls. I, II.

Massalongo, A. 1851. Sopra le Pianti Fossili dei Terreni Terziari del Vicentino. 264 pp. Padova.

— 1852. *Sapindacearum Fossilium Monographia*, 28 pp., VI pls. Verona.

— 1854. See Visiani.

— 1857. Sulla Flora Fossile di Sinigaglia. *Lett. al Scarabelli*. 32 pp. Verona.

— 1858. See Visiani.

— 1858. Sulle Piante Fossili di Zovencedo e dei Vegrani. *Lett. al Visiani*. 20 pp. Verona.

— 1858a. Synopsis Florae fossilis senogalliensis. Verona [Not Seen].

— 1858b. *Palaeophyta Rariora Formationis Tertiariae Agri Veneti*. *Atti Ist. Veneto*, (3), III, pp. 729—793.

— 1858c. Reliquie della Flora fossile Eocena del Monte Pastello nella Veronese. *Atti Ist. Veneto*, (3), III, pp. 169—186, pls. I—VII.

— 1859. *Syllabus Plantarum Fossilium*. 177 pp. Verona.

— & Scarabelli, G. 1858. Studii sulla Flora Fossile e Geologia Stratigrafica del Senigalliese. 504 pp., XLV pls. Verona.

Medlicott, H. B. 1885. On the Geological Structure and relations of the Southern portion of the Himalayan range between the rivers Ganges and Ravee. *Mem. Geol. Surv. India*, III, pp. 1—185.

Menzel, P. 1898. Beitrag zur Kenntnis der Tertiärfloren des Jesuitengrabens bei Kundratitz. *Abh. Nat. Ges. Isis Dresden*, 1897, pp. 3—18, pl. I.

— 1903. Ueber die Flora der plastischen Tone von Preschen und Langaujezd bei Bilin. *Abh. Nat. Ges. Isis Dresden*, 1903, Jan.—Juni, pp. 13—19.

— 1910. Pflanzenreste aus dem Posener Ton. *Jahrb. Preuss. Geol. Landesanst.*, XXXI, 1, pp. 173—191, pls. XII—XV.

— 1913. Beitrag zur Flora der Niederrheinischen Braunkohlenformation. *Jahrb. Preuss. Geol. Landesanst.*, XXXIV, I, 1, pp. 1—98, pls. I—VII.

— 1914. Beitrag zur Kenntnis der Tertiärfloren aus dem Gebiete des Vierwaldstätter Sees. II. Palaeontologischer Teil. *Mém. Soc. Pal. Suisse*, XL, pp. 21—84, pls. I—IV.

— 1920. Ueber Pflanzenreste aus Basalittuffen des Kamerungebietes. *Beitr. Erforsch. Deutsch. Schutzgebiete*, XVIII, pp. 17—32, pl. I.

Meschinelli, L. 1889. Studio sulla Flora Fossile del Monte Piano. *Atti Soc. Veneto-Trent. Sci. Nat. Padova*, X, II, pp. 274—297, pl. VI.

— & Squinabol, X. 1893. *Flora Tertiaria Italica*. 578 pp. Padova.

Mieg, M., Bleicher, G. & Fliche, P. 1890. Contribution à l'étude du terrain tertiaire d'Alsace et des environs de Mulhouse. *Bull. Soc. Géol. France*, (3), XVIII, pp. 392—422.

Molon, F. 1867. Sulla Flora Terziaria delle Prealpi Venete. *Mem. Soc. Ital. Sci. Nat. Milan*, II, 3. pp. 1—140.

Mueller, F. von. 1871, —73, —74, —77, —78. New Vegetable Fossils of Victoria. (A series of appendices in Quarterly Reports Mining Surveyors, Victoria, afterwards reprinted by Victoria Geol. Surv. See Mueller, 1874a and 1883.)

— 1874a. Observations on New Vegetable Fossils of the Auriferous Drifts. *Geol. Surv. Victoria*. 31 pp., X pls. (Reprinted from Rept. Min. Surv. Victoria, 1871—4.)

— 1877a. Descriptive Notes on the Tertiary Flora of New South Wales. *Ann. Rept. Dept. Mines, N. S. Wales*, 1876, pp. 178—180.

— 1879. Descriptive Notes on the Tertiary Flora of New South Wales. *Ann. Rept. Dept. Mines, N. S. Wales*, 1878, pp. 169—172, pls. III, IV.

— 1883. Observations on New Vegetable Fossils of the Auriferous Drifts. Second decade. *Geol. Surv. Victoria*, pp. 1—23, pls. XI—XX. (Reprinted from Rept. Min. Surv. Victoria, 1875—8.)

Nathorst, A. G. 1883. Bidrag till Japans fossila flora. *Vega Exped. Vetensk. Jakittagelser*, IV, pp. 119—225, pls. IV—XIX.

— 1888. Zur Fossilien Flora Japans. *Pal. Abh. Dames u. Kayser*, IV, pp. 197—250, pls. XVII—XXX.

Newberry, J. S. 1868. Notes on the Later Extinct Floras of North America with Descriptions of some New Species of Fossil Plants from the Cretaceous and Tertiary Strata. *Ann. N. Y. Lyc. Nat. Hist.*, IX, pp. 1—76.

— 1898. The Later Extinct Floras of North America. (A posthumous work edited by A. Hollick). *Mon. U. S. Geol. Surv.*, XXXV, XVII + 295 pp., LXVIII pls.

Paolucci, L. 1896. Nuovi Materiali e Ricerche Critiche sulle Piante fossili Terziarie dei Gessi di Ancona. XX + 158 pp., XXIV pls. Ancona.

Parsons, J. 1757. Of some Fossil Fruits, and other Bodies, found in the Island of Shepey. *Phil. Trans. Roy. Soc.*, L, p. 396. *Phil. Trans. Abridged*, 1809, XI, pp. 165—8, pl. VI.

Poela, P. 1895. Flora fossile Braidese. [Not seen].

— 1896. Florule plioceniche del Piemonte. *Riv. Ital. Pal.*, II, pp. 264—278.

— 1898. Aggiunti alla flora fossile dei gessi di Ancona. *Riv. Ital. Pal.*, IV, pp. 80—82.

— 1899. Florula Messiniana di Monte Castello d'Alessandria. *Boll. Soc. Geol. Ital.*, XVIII, pp. 44—51.

— 1899a. Flora del Langhiano torinese. *Riv. Ital. Pal.*, V, pp. 95—108.

— 1900. Flora Messiniana di Guarone e Dintorin. *Boll. Soc. Geol. Ital.*, XVIII, (1899), pp. 225—255.

Perkins, G. H. 1904. On the Lignite or Brown Coal of Brandon and its Fossils. *Rept. Vermont State Geol.*, 1903—1904, pp. 153—212, pls. LXXV—LXXXI.

- 1905. Tertiary Lignite of Brandon, Vermont, and its Fossils. Bull. Geol. Soc. Amer., XVI, pp. 499—516, pls. LXXXVI, LXXXVII.
- 1906. Fossils of the Lignite (of Brandon). Rept. Vermont State Geol., 1905—1906, pp. 202—230, pls. LIII—LVIII.
- Peruzzi, G. 1876. Descrizione di Alcune Filliti della Lignite del Casino. N. Giorn. Bot. Ital., VIII, pp. 63—77.
- Pilar, G. 1883. Flora Fossilis Susedana. Djela Jugoslav. Akad. Znan. i Umjet., IV, VIII + 164 pp., XV pls.
- Principi, P. 1908. Contributo alla Flora fossile del Sinigagliese. Malpighia, XXII, pp. 35—63.
- 1914. Synopsis della Flora fossile oligocenica di Santa Giustina e Sassello. Atti Soc. Ligustica Sci. Nat., XXV, pp. 149—200.
- 1916. Le Dicotiledoni Fossili del Giacimento Oligocenico di Santa Giustina e Sassello in Liguria. Mem. Descr. Carta Geol. Italia, VI, pp. I—294, pls. I—LXXXV.
- 1921. Synopsis della Flora oligocenica di Salcedo e Chiavon. Atti Soc. Ligustica Sci. Nat., XXXI, pp. 73—106.
- 1924. Flora rupeliana del bacino di Bagnasco (Piemonte). Atti. Soc. Ligustica Sci. Lett., n. s. III, pp. 267—321, pl. 1.
- 1926. La Flora Oligocenica di Chiavon e Salcedo. Mem. Descr. Carta Geol. Italia, X, 130 pp., XI pls.
- 1926a. Nuovo contributo alla studio della flora sarmaziana di Polenta in Provincia di Forlì. Atti Soc. Ligustica Sci. Lett., n. s., V, pp. 185—256, pls. I—IV.
- Prinzinger, H. 1850. Ueber die Schiefergehirge im südlichen Teile des Kronlandes Salzburg. Jahrb. Geol. Reichsanst. Wien, I, pp. 602—606.
- Probst, J. 1883. Beschreibung der fossilen Pflanzenreste aus der Molasse von Heggbach, O. A. Biberach und einigen andern oberschwabischen Localitäten. Jhft. Ver. vaterl. Nat. Württemb. XXXIX, pp. 166—242, pls. I, II.
- Reid, C., & E. M. 1915. The Pliocene Floras of the Dutch-Prussian Border. Med. Rijksops. Delfstoffen, No. 6, 178 pp., XX pls.
- Reininger, H. 1908. Das Tertiärbecken von Budweis. Jahrb. Geol. Reichsanst. Wien, LVIII, pp. 469—526, pl. XVII.
- Rossmässler, E. A. 1840. Die Versteinerungen des Braunkohlensandsteins aus der Gegend von Altsattel in Böhmen. 42 pp., XII pls. Dresden & Leipzig.
- Sacco, F. 1885. La Valle della Stura di Cuneo dal Ponte dell'Olla a Bra e Cherasco. Atti Soc. Ital. Sci. Nat., pp. 209—309.
- 1886. Il piano Messiniano nel Piemonte. Boll. Soc. Geol. Ital., V, pp. 74—92.
- Salter, J. W. 1862. See De la Harpe.
- Sandberger, F. 1879. Ueber die Braunkohlenformation der Rhön. Berg u. Hüttenmänn. Zeitung, XXXVIII, no. 21, pp. 177—181.
- Sangiorgi, D. 1916. Flora Fossile dell'Imolese. Boll. Soc. Geol. Ital., XXXV, pp. 279—302, pl. XV.
- Saporta, G. de. 1863. Etudes sur la Végétation du Sud-Est de la France à l'Epoque Tertiaire, V. Ann. Sci. Nat. Bot., (4) XIX, pp. 5—124, pls. I—XI.
- 1865. Etudes sur la Végétation du Sud-Est de la France à l'Epoque Tertiaire, II, 2. Flores des Calcaires Marneux du Bassin de Marseill'e. Ann. Sci. Nat. Bot., (5), III, pp. 61—152, pls. I—VIII.

- 1865a. Etudes sur la Végétation du Sud-Est de la France à l'Epoque Tertiaire, II, (3). Flore d'Armissan et de Peyriac. Ann. Sci. Nat. Bot., (5) IV, pp. 5—264, pls. I—XIII.
- 1868. Note sur la flore fossile de Coumi (Eubée). Bull. Soc. Géol. France, (2), XXV, pp. 315—327.
- 1873. Etudes sur la Végétation du Sud-Est de la France à l'Epoque Tertiaire. Suppl. I. Révision de la Flore des Gypses d'Aix. Ann. Sci. Nat. Bot., (5) XVIII, pp. 23—146, pls. I—XVIII.
- 1878. Essai descriptif sur les Plantes Fossiles des Arkoses de Brives. Ann. Soc. Agric. Sci. du Puy, XXXIII, Pt. 2, Mém., pp. 1—72, VI pls.
- 1889. Dernières Adjonctions à la Flore Fossile d'Aix-en-Provence, II. Ann. Sci. Nat. Bot., (7) X, pp. 1—192, pls. I—XX.
- 1894. Flore Fossile du Portugal. 288 pp., XXXIX pls. Lisbon.
- Scarabelli, G. 1858. See Massalongo.
- Schafarzik, F. 1884. Geologische Aufnahme des Pilis-Gebirges und der Beiden "Wachtberge" bei Gran. Jahresb. Ungar. Geol. Anst. 1882—1886, pp. 105—132.
- Schenk, A. 1888. Handbuch der Palaeontologie (Zittel), Abt. II, Palaeophytologie, Lief. 6.
- 1889. Idem, Lief. 8.
- Schimper, W. P. 1872. Traité de Paléontologie Végétale, II. 968 pp., Paris.
- 1874. Traité de Paléontologie Végétale, III, 896 pp. atlas, CX pls., Paris.
- Schindehütte, G. 1907. Die Tertiärflora des Basalttuffes vom Eichelskopf bei Homberg (Bez. Kassel). Abh. Preuss. Geol. Landesanst., N. F., LIV, 81 pp., XIII pls.
- Shirley, J. 1898. Additions to the Fossil Flora of Queensland. Bull. Geol. Surv. Queensland, VII, 25 pp., XXVII pls.
- Sieber, J. 1879. Ein Beitrag zur Kenntnis der Flora der Diatomaceenschiefer von Kutschlin bei Bilin. Verh. Geol. Reichsanst. Wien, 1879, pp. 241—243.
- 1880. Zur Kenntnis der nordböhmischen Braunkohlenflora. Sitzber. Ak. Wiss. Wien, LXXXII, 1, pp. 67—101, pls. I—V.
- Singewald, J. T. & Berry, E. W. 1922. The Geology of the Corocoro Copper District of Bolivia. Johns Hopkins Univ. Studies in Geol., 1, 117 pp., XVII pls.
- Sismonda, E. 1859. Prodrome d'une Flore Tertiaire du Piémonte. Mem. R. Acc. Sci. Torino, (2) XVIII, pp. 519—547, pls. I—IV.
- 1865. Matériaux pour servir à la Paléontologie du Terrain Tertiaire du Piémont. Mem. R. Acc. Sci. Torino, (2) XXII, pp. 391—471, pls. I—XXXIII.
- Squinabol, X. 1893. See Meschinelli.
- 1901. La Flore de Novale. Mém. Soc. Fribourgeoise Sci. Nat., II, pp. 1—97, pls. I—V.
- 1903. Piante fossili di Contra Cantone (Novale). Atti Mem. Acc. Padova, (II) XIX, pp. 51—56.
- Stanton, T. W. 1909. The Age and Stratigraphic Relations of the "Ceratops Beds" of Wyoming and Montana. Proc. Washington Acad. Sci., XI, pp. 239—293.
- & Knowlton, F. H. 1897. Stratigraphy and Paleontology of the Laramie and Related Formations in Wyoming. Bull. Geol. Soc. America, VIII, pp. 127—156.
- Stefani, C. de. 1887. Le ligniti del bacino di Castelnuovo di Garfagnana. Boll. R. Com. Geol. Ital., XVIII, pp. 212—241.

Steger, V. 1883. Die schwefelführenden Schichten von Kokoschütz in Oberschlesien und die in ihnen auftretende Tertiärflora. 30 pp. Inaug. Dissert. Ratibor. [An abstract of this paper appeared in the Abh. Nat. Ges. Görlitz, 1884, XVIII, pp. 26—40.]

Stizenberger, E. 1851. Uebersicht der Versteinerungen des Grossherzogtums Baden. 144 pp., Freiburg.

Strozzi, C. See *Gaudin*.

Stur, D. 1866. Blattabdrücke aus dem Polierschiefer am Fahrwege von Leinisch nach Aussig an der Elbe, oberhalb Priesnitz. Jahrb. Geol. Reichsanst. Wien, XVI, Verh. pp. 138—139.

- 1867. Beiträge zur Kenntnis der Flora der Süsswasserquarze, der Congerien- und Cerithien-Schichten im Wiener und ungarischen Becken. Jahrb. Geol. Reichsanst. Wien, XVII, pp. 77—188, pls. III—V.
- 1873. Beiträge zur genaueren Deutung der Pflanzenreste aus dem Salzstocke von Wieliczka. Verh. Geol. Reichsanst. Wien, pp. 6—10.
- 1873a. Zur Flora von Parschlug. Verh. Geol. Reichsanst. Wien, p. 201.
- 1875. (Review of Lesquereux, 'The Cretaceous Flora'). Verh. Geol. Reichsanst. Wien, pp. 163—164.
- 1881. Ueber Blattreste der fossilen Gattung *Dryophyllum* Debey. Verh. Geol. Reichsanst. Wien, pp. 290—292.

Taeger, H. 1908. Die geologischen Verhältnisse des Vertesgebirges. Mitt. Jahresb. Ungar. Geol. Anst., XVII, pp. 1—276, pls. I—XI.

Trowbridge, A. C. 1923. A Geologic Reconnaissance in the Gulf Coastal Plain of Texas near the Rio Grande. U. S. Geol. Surv. Prof. Paper 131 D, pp. 85—117, pls. XXIX—XXXIII.

Unger, F. 1845. Synopsis Plantarum Fossilium. 330 pp. Leipzig.

- 1848. Die fossile Flora von Parschlug. Neues Jahrb., pp. 505—510.
- 1849. Einige interessante Pflanzenabdrücke aus der königl. Petrefacten-Sammlung in München. Bot. Zeit., VII, pp. 345—353, pl. V.
- 1850. Genera et Species Plantarum Fossilium. 628 pp. Vienna.
- 1851. Die Fossile Flora von Sotzka. Denkschr. Ak. Wiss. Wien, II, pp. 131—197, pls. XXII—LXVIII.
- 1854. Die Fossile Flora von Gleichenberg. Denkschr. Ak. Wiss. Wien, VII, pp. 157—184, pls. I—VIII.
- 1860. Sylloge Plantarum Fossilium, I. Denkschr. Ak. Wiss. Wien, XIX, pp. 1—48, pls. I—XXI.
- 1862. Wissenschaftliche Ergebnisse einer Reise in Griechenland. 213 pp. Vienna.
- 1864. Sylloge Plantarum Fossilium. II. Denkschr. Ak. Wiss. Wien, XXII, pp. 1—36, pls. I—XII.
- 1866. Sylloge Plantarum Fossilium. III. Denkschr. Ak. Wiss. Wien, XXV, pp. 1—76, pls. I—XXIV.
- 1867. Die fossile Flora von Kumi auf der Insel Euboea. Denkschr. Ak. Wiss. Wien, XXVII, pp. 27—90, pls. I—XVII.
- 1867a. Kreidepflanzen aus Oesterreich. Sitzber. Ak. Wiss. Wien, LV, 1, pp. 642—654, pls. I, II.
- 1869. Die Fossile Flora von Radoboj. Denkschr. Ak. Wiss. Wien, XXIX, pp. 125—170, pls. I—V.
- 1870. Die fossile Flora von Szántó in Ungarn. Denkschr. Ak. Wiss. Wien, XXX, pp. 1—20, pls. I—V.

Veatch, A. C. 1906. Geology and Underground Water Resources of Northern Louisiana and Southern Arkansas. U. S. Geol. Surv. Prof. Paper 46, IV + 422 pp., 1 pl.

Velenovsky, J. 1881. Die Flora aus den ausgebrannten Tertiären Letten von Vršoví bei Laun. Abh. Böhm. Ges. Wiss. Prag, (6), XI, pp. 1—56, pls. I—X.

— 1884. Die Flora der böhmischen Kreideformation. III. Beitr. Palaeont. Oesterreich-Ung., IV, pp. 1—14, pls. I—VIII.

— 1889. Květenu Českého Cenomanu. Abh. Böhm. Ges. Wiss., (7), III, pp. 1—75, pls. I—VI.

Visiani, R. de. 1858. Piante Fossili della Dalmazia. Mem. R. Ist. Veneto, VII, pp. 423—455, pls. XV—XX.

— & Massalongo, A. 1854. Synopsis plantarum Florae tertiarae Novalensis. Flora, XXXVII, pp. 113—124.

— 1858. Flora de' Terreni Terziarii di Novale nel Vicentino. Mem. R. Acc. Sci. Torino (2), XVII, pp. 199—243, pls. I—XIII.

Vukotinović, Lj. 1870. O petrefaktih (okaminah) u obči, i o podzemskoj Fauni i Flori Susedskih laporah. Rad. Jugoslav. Akad., XIII, 3, pp. 172—212, II pls.

Ward, L. F. 1885. Synopsis of the Flora of the Laramie Group. U. S. Geol. Surv., 6th Ann. Rept., 1884—1885, pp. 399—570, pls. XXXI—LXV.

— 1887. Types of the Laramie Flora. Bull. U. S. Geol. Surv., XXXVII, pp. 1—354, pls. I—LVII.

— 1905. Status of the Mesozoic Floras of the United States. With the collaboration of W. M. Fontaine, A. Bibbins, and G. R. Wieland. Mon. U. S. Geol. Surv., XLVIII, 616 pp., atlas, CXIX pls.

Watelet, A. 1866. Description des Plantes Fossiles du Bassin de Paris. 264 pp.; atlas, LX pls. Paris.

Weber, C. O. 1851. Ueber die Tertiärfloren der niederrheinischen Braunkohlenformation. Zeitschr. deutsch. Geol. Ges., III, pp. 391—404.

— 1852. Die Tertiärfloren der Niederrheinischen Braunkohlenformation. Palaeontogr., II, pp. 115—236, pls. XVIII—XXV.

— 1855. See Wessel.

Wentzel, J. 1881. Fossile Pflanzen aus den Basalttuffen von Warnsdorf in Böhmen. Verh. Geol. Reichsanst. Wien, pp. 90—92.

— 1881a. Die Flora des tertiären Diatomaceenschiefers von Sulzoditz im böhmischen Mittelgebirge. Sitzber. Ak. Wiss. Wien, LXXXIII, 1, pp. 241—265, I pl.

Wessel, P. & Weber, O. 1855. Neuer Beitrag zur Tertiärfloren der niederrheinischen Braunkohlenformation. Palaeontogr., IV, pp. 111—168, pls. XX—XXX.

Wilckens, O. 1926. Materialien und Beiträge zur Geologie und Palaeontologie der Umgegend von Bonn. II. Die Flora des Bonner Untermiozäns. Sitzber. Nat. Ver. pr. Rheinl. u. Westf., 1925, C, pp. 27—42.

Würtenberger, F. J. 1870. Die Tertiärfloren in Klettgau. Zeitschr. deutsch. Geol. Ges., XXII, pp. 471—581, pl. XII.

Zwanziger, G. A. 1878. Beiträge zur Miocänflora von Liescha. Jahrb. Landes-Mus. Kärnten, XIII, pp. 1—99, pls. I—XXVIII.

Aphania Blume.

Aphania senegalensis Radkofer.

1920 *Aphania senegalensis* Radkofer: Menzel, p. 28.

Occurrence: ? Pleistocene; Kameroons.

Aporrhiza Radkofer.

Aporrhiza nitida Gilg.

1920 *Aporrhiza nitida* Gilg: Menzel, p. 28.

Occurrence: ? Pleistocene; Kameroons.

Carpolithus Linnaeus.

[**Carpolithus circumcinctus** Saporta.]

1873 *Carpolithes circumcinctus* Saporta, p. 135, pl. XVIII, f. 34.

Remarks: ? Sapindaceae, or perhaps Juglandaceae.

Occurrence: Oligocene; Aix-en-Provence.

Carpolithus cupanoides Crié.

1886 *Carpolithes cupanoides* Crié, p. 1143.

Remarks: Described but not figured. Said to agree with *Cupanoides* Bowerbank.

Occurrence: Eocene; western France.

Carpolithus euphoriaeoides Engelhardt.

1922 *Carpolithes euphoriaeoides* Engelhardt, p. 120, pl. XL, f. 25.

Remarks: Fruit, said to be reminiscent of *Euphoria* spp.

Occurrence: Eocene; Hessen (Messel near Darmstadt).

[**Carpolithus sapindaceus** Massalongo.]

1859 *Carpolithes sapindaceus* Massalongo, p. 122.

Remarks: Nomen nudum.

Carpolithus sapindiformis Engelhardt.

1922 *Carpolithes sapindiformis* Engelhardt, p. 94, pl. XXX, f. 11.

Remarks: Engelhardt says that perhaps this fruit belongs to one of the *Sapindus* leaves described from the deposit.

Occurrence: Eocene; Hessen (Messel near Darmstadt).

Carpolithus sapindoides Engelhardt.

1922 *Carpolithes sapindoides* Engelhardt, p. 120, pl. XL, f. 26.

Remarks: Compared with *Sapindus* fruits.

Occurrence: Eocene; Hessen (Messel near Darmstadt).

Carpolithus sp.1910 *Carpolithes* sp.: Menzel, p. 189, pl. XIV, f. 8, 9.Remarks: Compared by Menzel with *Cupanoides inflatus* Bowerbank.

Occurrence: Upper Miocene; Posen.

Chytranthus Hooker f.**Chytranthus dinklagei** Gilg.1920 *Chytranthus dinklagei* Gilg: Menzel, p. 28.

Occurrence: ? Pleistocene; Kameroons.

Conchotheca Mueller.**[Conchotheca turgida** Mueller.]1874 (Sept.) *Conchotheca turgida* Mueller, p. 42, pl. X, f. 5—12.1874a *Conchotheca turgida* Mueller, p. 24, pl. X, f. 5—12.1925 *Conchotheca turgida* Mueller: Deane, p. 491, pl. LX, f. 11, 17—21.Remarks: Deane says: "The alliance seems to me to be with *Sapindaceae*". Von Mueller gives no opinion on the affinities of the fruit.

Occurrence: Pliocene; Victoria.

Cupania Linnaeus.**[Cupania axonensis** Watelet.]1866 *Cupania axonensis* Watelet, p. 227, pl. LVI, f. 5.Remarks: Now referred by Fritel (1909, p. 261—2) to *Laurus regularis* Watelet.**[Cupania corrugata, depressa, etc.]**Synonyms of *Cupanoides corrugatus* etc., q. v.**[Cupania dryandraefolia** Massalongo.]1859 *Cupania dryandraefolia* Massalongo, p. 93.

Remarks: Nomen nudum.

[Cupania furcinervis (Rossmässler) Stur.]1840 *Phyllites furcinervis* Rossmässler, p. 33, pl. VI, f. 25, pl. VII, f. 26—31 (32—36).1845 *Quercus furcinervis* (Rossm.) Unger, p. 217.1875 *Cupania furcinervis* (Rossm.) Stur, p. 164.1881 *Cupania furcinervis* (Rossm.): Stur, p. 292.Remarks: With additional material of Rossmässler's *Phyllites furcinervis* (which had been referred to *Quercus* by Unger, and closely compared with the Aachen *Dryophylla* by Debey), Stur concluded that it was a compound leaf, and he considered it to be probably a *Cupania*. In the material at his disposal Stur distinguished two species, and named the second *Cupania rossmässleri*, but without illustrating either. He further suggested that some of the *Dryophyllum* leaves from the Cretaceous of

Aachen might really be leaflets of *Cupania* or some other genus of Sapindaceae.

Following Unger, *P. furcinervis* has been accepted as a *Quercus* by numerous authors. In discussing the species, Friedrich (1883, p. 54), justly remarks that until Stur's Altsattel specimens have been figured, there is no adequate ground for abandoning the reference to *Quercus*. He further suggests that the large size of some specimens does not support Stur's contention that they are leaflets of a compound leaf.

Occurrence: Upper Oligocene; Bohemia (Altsattel).

[*Cupania grandis* Unger.]

Synonym of *Cupanites grandis*, q. v.

Cupania grosseserrata (Engelhardt) Berry.

- 1890 *Benettia grosse-serrata* Engelhardt, p. 4 (nomen).
- 1890 *Thouinia philippii* Engelhardt, p. 4 (nomen).
- 1891 *Benettia grosseserrata* Engelhardt, p. 655, pl. XII, fig. 3.
- 1891 *Thouinia philippii* Engelhardt, p. 671, pl. IX, f. 13, pl. X, f. 4, 5.
- 1922 *Thouinia philippii* Engelhardt: Berry, pp. 82, 84, 96, 105, pl. IV, f. 1, 2.
- 1925 *Cupania grosseserrata* (Engelhardt) Berry, p. 212, pl. VI, f. 5.

Remarks: Berry points out the identity of the leaves from Chile referred by Engelhardt to *Benettia* (Compositae) and *Thouinia*, and considers (1925) that they are more properly to be placed in *Cupania*. The specific name *grosseserrata* is retained as it has priority of position.

Occurrence: Miocene; Chile and Patagonia.

Cupania incerta Berry.

- 1925 *Cupania incerta* Berry, p. 215, pl. VIII, f. 3.

Occurrence: Miocene; Patagonia.

[*Cupania juglandina* Ettingshausen.]

Synonym of *Cupanites juglandinus*, q. v.

Cupania latifolioides Berry.

- 1925 *Cupania latifolioides* Berry, p. 214, pl. VI, f. 4.

Occurrence: Miocene; Patagonia.

Cupania ? longipes Heer.

- 1878 *Cupania ? longipes* Heer, p. 51, pl. XIV, f. 9.

Occurrence: Miocene; Sachalin.

[*Cupania melaena* Ettingshausen.]

- 1851a *Cupania melaena* Ettingshausen, p. 186.

Remarks: Nomen nudum.

[*Cupania miocenica* Ettingshausen.]

1850 *Cupania miocenica* Ettingshausen in Prinzinger, p. 604.

Remarks: Name only; evidently synonymous with *Cupanoides miocenicus* Ettingshausen (see under *Cupanites*).

[*Cupania neptuni* (Unger).]

Synonym of *Cupanites neptuni*, q. v.

[*Cupania palaeorhus* Ettingshausen.]

Synonym of *Cupanites palaeorhus*, q. v.

[*Cupania praetomentosa* Krasser.]

1903 *Cupania praetomentosa* Krasser, p. 858.

Remarks: Ms. name of Ettingshausen. Nomen nudum.

Occurrence: Tertiary; Brazil.

[*Cupania Rossmaessleri* Stur.]

1875 *Cupania rossmässleri* Stur, p. 164.

1881 *Cupania rossmässleri* Stur, p. 291.

Remarks: See *Cupania furcinervis*.

Occurrence: Upper Oligocene; Bohemia (Altsattel).

***Cupania* sp.**

1862 *Cupania* sp.: De la Harpe & Salter, p. 117.

Remarks: Leaf, also said to resemble *Juglans*.

Occurrence: Eocene; England (? Alum Bay).

***Cupanites* Schimper 1874, p. 170.**

Established for sapindaceous leaves of doubtful generic affinity, including those referred by Unger to *Cupania*. The genus *Cupanoides* should be restricted to fruits.

Schenk (1888, p. 548) is uncertain whether these leaves belong to *Sapindaceae*, and suggests that there is also a resemblance to *Juglandaceae* and *Anacardiaceae*.

***Cupanites anomalous* (Andrae) Schimper.**

1855 *Cupanoides anomalous* Andrae, p. 23, pl. III, f. 3.

1867 *Cupanoides anomalous* Andrae: Stur, p. 179.

1874 *Cupanites anomalous* (Andrae) Schimper, p. 172.

1888 *Cupanites anomalous* (Andrae): Schenk, p. 548.

Remarks: "Too fragmentary for identification". (Schenk).

Occurrence: Oligocene; Transylvania (Thalheim).

***Cupanites eoligniticus* Berry.**

1916 *Cupanites eoligniticus* Berry, p. 269, pl. LXIV, f. 8, 9; pl. LXV, f. 1—3.

Occurrence: Eocene (Wilcox); Tennessee, Louisiana.

Cupanites grandis (Unger) Schimper.

1860 *Cupania grandis* Unger, p. 36, pl. XV, f. 6.
 1861 *Cupania grandis* Unger: Ettingshausen, p. 244.
 1868 *Cupania grandis* Unger: Ettingshausen, p. 878, pl. V, f. 2.
 1874 *Cupanites grandis* (Unger) Schimper, p. 171.
 1883 *Cupania grandis* Unger: Pilar, p. 102.
 1888 *Cupanites grandis* (Unger): Schenk, p. 548, f. 312¹.
 1921 *Cupanites grandis* (Unger): Principi, p. 92.
 1926 *Cupanites grandis* (Unger): Principi, p. 76.

Remarks: Compared with the living *C. micrantha* of Brazil.
 Occurrence: Oligocene; Italy (Chiavon).

Miocene; Croatia (Radoboj, Sused, Dolje).
 Germany (Salzhausen).

Cupanites juglandinus (Ettingshausen) Schimper.

1858 *Cupania juglandina* Ettingshausen, p. 534, pl. III, f. 2, 6.
 1861 *Cupania jugandina* Ett.: Ettingshausen, p. 244.
 1874 *Cupanites juglandinus* (Ett.) Schimper, p. 171.
 1879 *Cupania juglandina* Ett.: Hauer, p. 171.
 1888 *Cupanites juglandinus* (Ett.) Schenk, p. 548.
 1902 *Cupania juglandina* Ett.: Engelhardt, p. 287, pl. II, f. 24.
 1922 *Cupania juglandina* Ett.: Engelhardt, p. 95, pl. XXXII, f. 5.

Remarks: Ettingshausen remarks that similar leaves are found in *Rhus* and *Juglans*. Engelhardt agrees that the identification is uncertain.

Occurrence: Eocene; Hessen (Darmstadt)
 Oligocene (Chattian); Styria (Sotzka), Bosnia
 (Zenica).
 Miocene; Hessen (Himmelsberg).

Cupanites lanceolatus Principi.

1921 *Cupanites lanceolatus* Principi, p. 92 (nomen)
 1926 *Cupanites* (?) *lanceolatus* Principi, p. 77, pl. IX, f. 7.

Occurrence: Oligocene: Italy (Chiavon).

Cupanites loughridgii Berry.

1888 *Myrica copeana* Lesquereux, p. 12.
 1916 *Cupanites loughridgii* Berry, p. 269, pl. LXV, f. 4.
 Remarks: Affinities uncertain. Not identical, according to Berry, with Lesquereux's *Myrica copeana* from Florissant.
 Occurrence: Eocene (Lagrange); Kentucky.

Cupanites miocenicus (Ettingshausen) Schimper.

1850 *Cupania miocenica* Ettingshausen in Prinzinger, p. 604 (nomen).
 1851 *Cupanooides miocenicus* Ettingshausen, p. 22, pl. V, f. 1.
 1851b *Cupanooides miocenicus* Ett.: Ettingshausen, p. 44.
 1852 *Cupanooides miocenicus* Ett.: Massalongo, p. 28.
 1861 *Cupanooides miocenicus* Ett.: Ettingshausen, p. 244.
 1867 *Cupanooides miocenicus* Ett.: Stur, p. 179.
 1874 *Cupanites miocenicus* (Ett.) Schimper, p. 170.

Remarks: Considered by Ettingshausen to be related to *Nephelium*, *Sapindus*, or *Cupania*. Attribution very doubtful, but probably *Sapindaceae*, according to Schimper.

Occurrence: Miocene; Austria (Laa near Vienna).

Cupanites neptuni (Unger) Schimper.

1850 *Samyda neptuni* Unger, p. 443.
 [1860 *Saurauja neptuni* Ettingshausen MS.: Unger, p. 35.]
 [1860 *Saurauja radobojana* Ettingshausen MS.: Unger, p. 35.]
 1860 *Cupania neptuni* (Unger) Unger, p. 35, pl. XV, f. 7, 8, pl. XVI, f. 1—4.
 1861 *Cupania neptuni* (Unger): Ettingshausen, p. 244.
 1869 *Cupania neptuni* (Unger): Engelhardt, p. 152.
 1870 *Cupania neptuni* (Unger): Engelhardt, p. 25, pl. VII, f. 1.
 1870a *Cupania neptuni* (Unger) (pars): Ettingshausen, p. 887, and table 8.
 1874 *Cupanites neptuni* (Unger) Schimper, p. 171.
 1883 *Cupania neptuni* (Unger): Pilar, p. 103.
 1891a *Cupania neptuni* (Unger): Engelhardt, p. 30.
 1892 *Cupanites neptuni* (Unger): Keller, p. 108, pl. XI, f. 1.
 1898 *Cupania neptuni* (Unger): Engelhardt, p. 105, pl. X, f. 29.
 1901 *Cupanites neptuni* (Unger): Squinabol, p. 55, pl. IV, f. 1.
 1911 *Cupania neptuni* (Unger): Engelhardt, p. 418, pl. XLIV, f. 14.
 1922 *Cupania neptuni* (Unger): Engelhardt, p. 95, pl. XXXII, f. 2.

Remarks: Ettingshausen (1870a, p. 886) referred Unger's figs. 7 and 8, pl. XVI to *Bombax*; Friedrich (1883, p. 145) went further and referred all Unger's figures to *Bombax*. Later authors have reverted to *Cupania* or *Cupanites*.

Occurrence: Upper Eocene; Italy (Novale), Hessen (Darmstadt). Oligocene; Bohemia (Berand), Hessen (Wieseck), Saxony. Miocene; Bohemia (Birkigt), Croatia (Radoboj, Sused, Dolje), Switzerland (St. Gallen).

Cupanites nigricans (Lesquereux) Berry.

1872 *Myrica nigricans* Lesquereux, p. 6.
 1878a *Myrica nigricans* Lesq.: Lesquereux, p. 132, pl. XVII, f. 9—12.
 1924 *Cupanites nigricans* (Lesq.) Berry, p. 176, pl. XXXIV, f. 7.
 Occurrence: Eocene (Jackson, Green River); Georgia, Wyoming.

Cupanites novae-zeelandiae Ettingshausen.

1887 *Cupanites novae-zeelandiae* Ettingshausen, p. 188, pl. IX, f. 18—20.
 1890 *Cupanites novae-zeelandiae* Ett.: Ettingshausen, p. 306, pl. XXXII, f. 18, 20.
 Occurrence: Upper Cretaceous; N. Zealand (Grey River & Pakawan).

Cupanites oligocenicus Principi.

1921 *Cupanites oligocenicus* Principi, p. 92 (nomen).
 1926 *Cupanites oligocenicus* Principi, p. 77, pl. IX, f. 6.
 Occurrence: Oligocene; Italy (Chiavon).

Cupanites palaeorhus (Ettingshausen) Schimper.

1869 *Cupania palaeorhus* Ettingshausen, p. 27, pl. XLVI, f. 12.
 1874 *Cupanites palaeo-rhus* (Ett.) Schimper, p. 172.
 1911 *Cupania palaeorhus* Ett.: Kafka, p. 29.
 Occurrence: Miocene; Bohemia (Bilin).

Cupanites parvulus Berry.

1924 *Cupanites parvulus* Berry, p. 70, pl. XII, f. 5.
Occurrence: Eocene (Yegua); Louisiana.

Cupanites selwyni Ettingshausen.

1886 *Cupanites selwyni* Ettingshausen, p. 126, pl. XIV, f. 12, 12a.
1888a *Cupanites selwyni* Ett.: Ettingshausen, p. 161, pl. XIV,
f. 12, 12a.
Occurrence: Tertiary; Australia.

Cupanoides Bowerbank 1840.

[1828 *Amomocarpum* Brongniart, p. 130.]
[1849 Non "Cupanoides Bow." : Brongniart, p. 83.]

Remarks: In 1828 Brongniart described some Sheppesey fruits and proposed the designation *Amomocarpum* on the supposition that they belonged to *Amomum*, but in 1849 he abandoned this identification and accepted Bowerbank's name.

Schenk (1888, p. 548) thinks it possible that these fruits might belong to some other genus or family.

The name has occasionally been used for leaf impressions, but should be confined to fruits.

[Cupanoides anomalus Andrae.]

Synonym of *Cupanites anomalus*, q. v.

Cupanoides carniolicus Unger.

1866 *Cupanoides carniolicus* Unger, p. 51, pl. XVI, f. 5.
1874 *Cupanoides carniolicus* Ung.: Schimper, p. 173.
1888 *Cupanoides carniolicus* Ung.: Schenk, p. 548.

Remarks: "Doubtful" (Schenk).

Occurrence: Tertiary; Carniola (Salberg).

Cupanoides corrugatus Bowerbank.

1840 *Cupanoides corrugatus* Bowerbank, p. 69, pl. XI, f. 3, 4.
1850 *Cupanoides corrugatus* Bowb.: Unger, p. 458.
1852 *Cupanoides corrugatus* Bowb.: Massalongo, p. 25.
1874 *Cupanoides corrugatus* Bowb.: Schimper, p. 173.
1879 *Cupania corrugata* (Bowb.) Ettingshausen, p. 395.
[1880 *Cupania corrugata* (Bowb.): Ettingshausen, p. 235.]
1888 *Cupanoides corrugatus* Bowb.: Schenk, p. 548, f. 312³.

Remarks: Ettingshausen's record from Alum Bay (1880) refers to a leaf.

Occurrence: Eocene (London Clay); England (Sheppesey).

Cupanoides depressus Bowerbank

[1828 ? *Amomocarpum depressum* Brongniart, pp. 137, 209 (nomen nudum).]
1840 *Cupanoides depressus* Bowerbank, p. 74, pl. XI, f. 23.
1850 *Cupanoides depressus* Bowb.: Unger, p. 458.
1852 *Cupanoides depressus* Bowb.: Massalongo, p. 27.
1874 *Cupanoides depressus* Bowb.: Schimper, p. 173.
1879 *Cupania deppressa* (Bowb.) Ettingshausen, p. 395.

[1880 *Cupania depressa* (Bowb.): Ettingshausen, p. 235.]
 Remarks: Ettingshausen's Alum Bay record refers to a leaf.

Occurrence: Eocene (London Clay): England (Sheppey).

Cupanoides grandis Bowerbank.

1840 *Cupanoides grandis* Bowerbank, p. 71, pl. XI, f. 10—12.
 1850 *Cupanoides grandis* Bowb.: Unger, p. 458.
 1852 *Cupanoides grandis* Bowb.: Massalongo, p. 26.
 1861 *Cupanoides grandis* Bowb.: Ettingshausen, p. 244.
 1874 *Cupanoides grandis* Bowb.: Schimper, p. 173.
 1879 *Cupania grandis* (Bowb.): Ettingshausen, p. 395. (Non Unger)
 [1880 *Cupania grandis* (Bowb.): Ettingshausen, p. 235.]

Remarks: Ettingshausen's Alum Bay record refers to a leaf.

Occurrence: Eocene (London Clay): England (Sheppey).

Cupanoides inflatus Bowerbank.

1840 *Cupanoides inflatus* Bowerbank, p. 73, pl. XI, f. 18—22.
 1850 *Cupanoides inflatus* Bowb.: Unger, p. 458.
 1852 *Cupanoides inflatus* Bowb.: Massalongo, p. 27.
 1874 *Cupanoides inflatus* Bowb.: Schimper, p. 173.
 1879 *Cupania inflata* (Bowb.): Ettingshausen, p. 395.
 1888 *Cupanoides inflatus* Bowb.: Schenk, p. 548, f. 312⁶.

Remarks: See also *Carpolithus* sp.

Occurrence: Eocene (London Clay): England (Sheppey).

Cupanoides lobatus Bowerbank.

1840 *Cupanoides lobatus* Bowerbank, p. 69, pl. XI, f. 1, 2.
 1850 *Cupanoides lobatus* Bowb.: Unger, p. 457.
 1852 *Cupanoides lobatus* Bowb.: Massalongo, p. 25.
 1861 *Cupanoides lobatus* Bowb.: Ettingshausen, p. 244.
 1874 *Cupanoides lobatus* Bowb.: Schimper, p. 172.
 1879 *Cupania lobata* (Bowb.): Ettingshausen, p. 395.
 [1880 *Cupania lobata* (Bowb.): Ettingshausen, p. 235.]

Remarks: In 1861 Ettingshausen included *C. corrugatus*, *C. depressus*, and *C. subangulatus* as synonyms of this species, but apparently he abandoned this view later. His Alum Bay record (1880) refers to a leaf.

Occurrence: Eocene (London Clay): England (Sheppey).

[Cupanoides miocenicus Ettingshausen.]

Synonym of *Cupanites miocenicus*, q. v.

Cupanoides peruvianus Berry.

1927 *Cupanoides peruvianus* Berry, p. 126, pl. XIX, f. 1, 1a, 1b.
 Occurrence: Oligocene; Paita, Peru.

Cupanoides pygmaeus Bowerbank.

1840 *Cupanoides pygmaeus* Bowerbank, p. 75, pl. XI, f. 24.
 1850 *Cupanoides pygmaeus* Bowb.: Unger, p. 459.
 1852 *Cupanoides pygmaeus* Bowb.: Massalongo, p. 27.
 1861 *Cupanoides pygmaeus* Bowb.: Ettingshausen, p. 244.

1874 *Cupanoides pygmaeus* Bowb.: Schimper, p. 173.
 1879 *Cupania pygmaea* (Bowb.) Ettingshausen, p. 395.
 Occurrence: Eocene (London Clay): England (Sheppey).

Cupanoides subangulatus Bowerbank.

1840 *Cupanoides subangulatus* Bowerbank, p. 70, pl. XI, f. 7—9.
 1850 *Cupanoides subangulatus* Bowb.: Unger, p. 458.
 1852 *Cupanoides subangulatus* Bowb.: Massalongo, p. 26.
 1874 *Cupanoides subangulatus* Bowb.: Schimper, p. 173.
 1879 *Cupania subangulata* (Bowb.) Ettingshausen, p. 395.
 [1880 *Cupania subangulata* (Bowb.): Ettingshausen, p. 235.]
 Remarks: Ettingshausen's Alum Bay record refers to a leaf.
 Occurrence: Eocene (London Clay): England (Sheppey).

Cupanoides tumidus Bowerbank.

1840 *Cupanoides tumidus* Bowerbank, p. 72, pl. XI, f. 13—17.
 1850 *Cupanoides tumidus* Bowb.: Unger, p. 458.
 1852 *Cupanoides tumidus* Bowb.: Massalongo, p. 26.
 1861 *Cupanoides tumidus* Bowb.: Ettingshausen, p. 244.
 1874 *Cupanoides tumidus* Bowb.: Schimper, p. 173.
 1879 *Cupania tumida* (Bowb.) Ettingshausen, p. 395.
 [1880 *Cupania tumida* (Bowb.): Ettingshausen, p. 235.]
 1888 *Cupanoides tumidus* Bowb.: Schenk, p. 548, f. 312^{a, b}.
 Remarks: Ettingshausen in 1861, but not in 1879, included *C. inflatus* in this species. His Alum Bay record (1880) refers to a leaf.
 Occurrence: Eocene (London Clay): England (Sheppey).

[**Cupanoides zanardinii** Massalongo.]

1858a *Cupanoides zanardinii* Massalongo, p. 102. [Not seen].
 1858 *Cupanoides zanardinii* Mass.: Massalongo & Scarabelli, p. 361, pl. XXVI; pl. XXVII, f. 32, pl. XLIV, f. 1.
 1885 *Cupanoides zanardinii* Mass.: Sacco, p. 277.
 1893 *Cupanoides zanardinii* Mass.: Meschinelli & Squinabol, p. 365.
 1896 *Laurus (?) tetratheroides* Ettingshausen: Paolucci, p. 80.
 1908 *Laurus tetratheroides* Ett.: Principi, p. 50.
 1916 *Laurus tetratheroides* Ett.: Principi, p. 100.
 Remarks: A leaf impression now accepted as a *Laurus*.
 Occurrence: Miocene; Italy (Senigaglia).

Deinbollia Schumacher.

Deinbollia calophylla Gilg.

1920 *Deinbollia calophylla* Gilg: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

Deinbollia cuneifolia Baker.

1920 *Deinbollia cuneifolia* Baker: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

Deinbollia pycnophylla Gilg.

1920 *Deinbollia pycnophylla* Gilg or *reticulata* Gilg: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

Djambioxylon Kräusel.**Djambioxylon sumatrense Kräusel.**

1922 *Djambioxylon sumatrense* Kräusel, p. 272, pl. II, f. 2 pl. IV, f. 7; pl. V, f. 1, 6—8; pl. VII, f. 7—9, 12.

1923 *Djambioxylon sumatrense* Kräusel: den Berger, p. 148.

Remarks: Kräusel and den Berger both suggest that this wood may belong to the *Sapindaceae*.

Occurrence: Miocene; Sumatra.

Dodonaea Linnaeus.

Remarks: Berry (1916, p. 271) makes critical comments on several of the European species.

Dodonaea allemanica Heer.

1859 *Dodonaea allemanica* Heer, p. 64, pl. CXXI, f. 15.

1861 *Dodonaea allemanica* Heer: Ettingshausen, p. 243.

1874 *Dodonaea allemanica* Heer: Schimper, p. 177, pl. C, f. 21.

1888 *Dodonaea allemanica* Heer: Schenk, p. 551.

Remarks: Fruit.

Occurrence: Miocene; Baden (Oeningen).

Dodonaea anthracotheriana Massalongo.

1858 *Dodonaea anthracotheriana* Massalongo, p. 16.

1859 *Dodonaea anthracotheriana* Mass.: Massalongo, p. 95.

1893 *Dodonaea anthracotheriana* Mass.: Meschinelli & Squinabol, p. 367.

Remarks: Fruit.

Occurrence: Oligocene; Italy (Vicentino).

Dodonaea antiqua Ettingshausen.

1869 *Dodonaea antiqua* Ettingshausen, p. 28, pl. XLVI, f. 18.

1870 *Dodonaea antiqua* Ett.: Ettingshausen, p. 83.

1874 *Dodonaea antiqua* Ett.: Schimper, p. 175.

1885 *Dodonaea antiqua* Ett.: Engelhardt, p. 352, pl. XVIII, f. 5.

1888 *Dodonaea antiqua* Ett.: Ettingshausen, p. 343, pl. VII, f. 15.

1898 *Dodonaea antiqua* Ett.: Engelhardt, p. 105.

1903 *Dodonaea antiqua* Ett.: Menzel, p. 17.

1911 *Dodonaea antiqua* Ett.: Kafka, pp. 29, 42, 63.

Remarks: Leaf.

Occurrence: Upper Oligocene; Bohemia (Kundratitz, Preschen, Berand). Miocene: Styria (Leoben).

Dodonaea apocynophyllum Ettingshausen.

1869 *Dodonaea apocynophyllum* Ettingshausen, p. 28, pl. XLVI, f. 19, 20.

1874 *Dodonaea apocynophyllum* Ett.: Schimper, p. 175.

1877 *Dodonaea apocynophyllum* Ett.: Ettingshausen, p. 190, pl. XV, f. 23.

1879 *Dodonaea apocynophyllum* Ett.: Engelhardt, p. 296.

1891c *Dodonaea apocynophyllum* Ett.: Engelhardt, p. 185, pl. XII, f. 25.

1911 *Dodonaea apocynophyllum* Ett.: Kafka, pp. 29, 42.

Remarks: A leaf species, but in 1877 Ettingshausen used the same name for a fruit. Principi (1916, p. 138) thinks that it should probably be included in *D. salicites* Ett.

Occurrence: Oligocene and Miocene; Bohemia (Bilin basin), Carniola (Sagor).

[**Dodonaea bilinicus.**]

1911 "Dodonaea bilinicus Ett.": Kafka, p. 63.

Remarks: Presumably a mistake for *Sapindus bilinicus* Ett.

Dodonaea confusa Saporta.

1863 *Dodonaea confusa* Saporta, p. 86, pl. X, f. 3.

1874 *Dodonaea confusa* Sap.: Schimper, p. 176.

Remarks: Fruit. "Correctly identified" (Berry 1916, p. 271).

Occurrence: Oligocene; France (St. Zacharie).

[**Dodonaea cupanoides.**]

1911 "Dodonaea cupanoides Ett.": Kafka, p. 63.

Remarks: Apparently a mistake for *Sapindus cupanioides* Ett.

Dodonaea cycloptera Saporta.

1863 *Dodonaea cycloptera* Saporta, p. 87, pl. X, f. 4.

1874 *Dodonaea cycloptera* Sap.: Schimper, p. 176, pl. C, f. 23, 24.

Remarks: Fruit. "Correctly identified" (Berry 1916, p. 271).

Occurrence: Oligocene; France (St. Zacharie).

Dodonaea emarginata Heer.

1859 *Dodonaea emarginata* Heer, p. 301.

1874 *Dodonaea emarginata* Heer: Schimper, p. 177.

Remarks: Fruit.

Occurrence: Miocene; Bavaria (Bischoffsheim).

Dodonaea helvetica Keller.

1896 *Dodonaea helvetica* Keller, p. 317, pl. XI, f. 10.

Occurrence: Miocene; Switzerland (St. Gallen).

Dodonaea knowltoni Berry.

1916 *Dodonaea knowltoni* Berry, p. 271, pl. LXIV, f. 3.

Remarks: Well-preserved fruits, nearest to the living *D. viscosa* L.

Occurrence: Eocene (Lagrange); Tennessee.

Dodonaea orbiculata Heer.

1859 *Dodonaea orbiculata* Heer, p. 65, pl. CXXI, f. 17.

1861 *Dodonaea orbiculata* Heer: Ettingshausen, p. 243.

1874 *Dodonaea orbiculata* Heer: Schimper, p. 177, pl. C, f. 25.

1883 *Dodonaea orbiculata* Heer: Steger, p. 24.

Remarks: Fruit.

Occurrence: Miocene; Baden (Oeningen).

[*Dodonaea prae-salicites* Ettingshausen.]

1880 *Dodonaea prae-salicites* Ettingshausen, p. 235.

Remarks: Nomen nudum.

Occurrence: Eocene; England (Alum Bay).

***Dodonaea prisca* Weber.**

1851 *Dodonaea prisca* Weber, p. 403 (nomen).

1852 *Dodonaea prisca* Weber, p. 199, pl. XXII, f. 8.

1853 *Dodonaea prisca* Weber: Ettingshausen, p. 96.

1855 *Dodonaea prisca* Weber: Wessel & Weber, p. 120.

1861 *Dodonaea prisca* Weber: Ettingshausen, p. 243.

1874 *Dodonaea prisca* Weber: Schimper, p. 176.

1888 *Dodonaea prisca* Weber: Schenk, p. 553, f. 314¹⁰.

1926 *Dodonaea prisca* Weber: Wilckens, p. 37.

Remarks: Leaf and fruit.

Occurrence: Upper Oligocene and Lower Miocene; Rhineland (Rott, Quegstein, Allrott, etc.). ?Tyrol (Häring) and Styria (Sotzka).

***Dodonaea pteleaefolia* (Weber) Heer.**

1851 *Rhus pteleaefolia* Weber, p. 403 (nomen).

1852 *Rhus pteleaefolia* Weber, p. 213, pl. XXIII, f. 13.

1855 *Rhus pteleaefolia* Weber: Wessel & Weber, p. 156, pl. XXVIII, f. 7.

1858 *Rhus pteleaefolia* Weber: Ludwig, p. 149, pl. XXX, f. 4.

1858a *Pyrus ovatifolia* Ludwig, p. 160, pl. XXXV, f. 14. (teste Schindehütte).

1859 *Rhus pteleaefolia* Weber: Massalongo, p. 104.

1859 *Dodonaea pteleaefolia* (Weber) Heer, p. 64, pl. CXXI, f. 9—12.

1860 *Rhus pteleaefolia* Weber: Ludwig, p. 140, pl. LIV, f. 8.

1861 *Dodonaea pteleaefolia* (Weber): Ettingshausen, p. 243.

1874 *Dodonaea pteleaefolia* (Weber): Schimper, p. 175, pl. C, f. 20.

1881 *Dodonaea pteleaefolia* (Weber): Engelhardt, p. 311, pl. XVI, f. 14.

1888 *Dodonaea pteleaefolia* (Weber): Schenk, p. 551.

1891c *Dodonaea pteleaefolia* (Weber): Engelhardt, p. 184, pl. XIII, f. 11, 12, 17, 20.

1893 *Dodonaea pteleaefolia* (Weber): Meschinelli & Squinabol, p. 367.

1907 *Dodonaea pteleaefolia* (Weber): Schindehütte, p. 59.

1914 *Dodonaea pteleaefolia* (Weber): Principi, p. 184.

1916 *Dodonaea pteleaefolia* (Weber): Principi, p. 137, pl. LXI, f. 3.

1921 *Dodonaea pteleaefolia* (Weber): Principi, p. 92.

1926 *Dodonaea* (?) *pteleaefolia* (Weber): Principi, p. 78, pl. VIII, f. 28.

1926 *Dodonaea pteleaefolia* (Weber): Wilckens, p. 37.

Remarks: Both leaves and fruits have been referred to this species. The leaves were compared by Heer with those of the living *D. viscosa*.

Berry and Principi express some doubts as to the certainty of the generic attribution.

Occurrence: Oligocene; Rhineland (Rott, etc.), Italy (Chiavon, S. Giustina). Miocene; Rhineland, Hessen (Eichelskopf), Switzerland (Wangen etc.), Bohemia (Grasseth, Dux).

Dodonaea radobojensis Ettingshausen.

1870a *Dodonaea radobojensis* Ettingshausen, p. 890, pl. I, f. 17.
 1874 *Dodonaea radobojensis* Ett.: Schimper, p. 175.

Remarks: Leaf.

Occurrence: Miocene (Aquitanian); Croatia (Radoboj).

Dodonaea salicites Ettingshausen.

1853 *Dodonaea salicites* Ettingshausen, p. 68, pl. XXIII, f. 36—43.
 1859 *Dodonaea salicites* Ett.: Heer, p. 299.
 1861 *Dodonaea salicites* Ett.: Ettingshausen, p. 243.
 1869 *Dodonaea salicites* Ett.: Ettingshausen, p. 28, pl. XLVII, f. 11.
 1874 *Dodonaea salicites* Ett.: Schimper, p. 175.
 1876 *Dodonaea salicites* Ett.: Engelhardt, p. 390, pl. VII, (XXII), f. 14.
 1877 *Dodonaea salicites* Ett.: Ettingshausen, p. 190.
 1879 *Dodonaea salicites* Ett.: Sandberger, p. 180.
 1888 *Dodonaea salicites* Ett.: Schenk, p. 552, f. 314^a.
 1891a *Dodonaea salicites* Ett.: Engelhardt, p. 37.
 1891c *Dodonaea salicites* Ett.: Engelhardt, p. 185, pl. XII, f. 6, 7.
 1898 *Dodonaea salicites* Ett.: Engelhardt, p. 105.
 1911 *Dodonaea salicites* Ett.: Kafka, pp. 29, 53, 63.
 1911 *Dodonaea salicites* Ett.: Engelhardt, p. 379, pl. XLI, f. 64.
 1914 *Dodonaea salicites* Ett.: Principi, p. 184.
 1916 *Dodonaea salicites* Ett.: Principi, p. 138, pl. LXI, f. 4 5.
 1922 *Dodonaea salicites* Ett.: Engelhardt, p. 95, pl. XXXII, f. 6.

Remarks: According to Berry (1916, p. 271), this is correctly determined. Principi (1916) compares it with the living *D. laurifolia*, and thinks that *D. apocynophyllum* should probably be united with it. Ettingshausen includes both leaves and fruits.

Occurrence: Eocene; Hessen (Messel). Oligocene; Tyrol (Häring), Carniola (Sagor), Italy (S. Giustina), Bohemia (Kutschlin, Berand etc.), Hessen (Florsheim). Miocene; Bohemia (Holai-kuk), Rhone (Sieblos).

Dodonaea saportana Laurent.

1899 *Dodonaea saportana* Laurent, p. 127, pl. XIII, f. 9.

Remarks: Fruit. "The best preserved fossil species heretofore noted" (Berry, 1916, p. 271).

Occurrence: Oligocene; France (Célas).

Dodonaea sotzkiana Ettingshausen.

1851 *Celastrus elaeanus* Unger (pars) pl. LI, f. 21.
 1858 *Dodonaea sotzkiana* Ettingshausen, pp. 504, 535.
 1861 *Dodonaea sotzkiana* Ett.: Ettingshausen, p. 243.
 1874 *Dodonaea sotzkiana* Ett.: Schimper, p. 174.

Remarks: Leaf.

Occurrence: Oligocene (Chattian); Styria (Sotzka).

[Dodonaea subglobosa Ettingshausen.]

1880 *Dodonaea subglobosa* Ettingshausen, p. 235.

1883 *Dodonaea subglobosa* Ett.: Crié, p. 612.

Remarks: Nomen nudum. In Ettingshausen's list of Alum Bay plants. and also recorded by Crié from the Eocene of Sarthe, but apparently never figured.

Dodonaea vera Hollick & Berry.

1924 *Dodonaea vera* Hollick & Berry, p. 80, pl. VII, f. 11—13.
 Occurrence: Late Tertiary; Brazil (Bahia).

Dodonaea vetusta Heer.

1859 *Dodonaea vetusta* Heer, p. 64, pl. CXXI, f. 13, 14.
 1861 *Dodonaea vetusta* Heer: Ettingshausen, p. 243.
 1874 *Dodonaea vetusta* Heer: Schimper, p. 174.
 1890 *Dodonaea cf. vetusta* Heer: Mieg, Bleicher & Fliche, p. 418.
 Occurrence: Miocene; Switzerland (Monod).

Dodonaea viscosaformis Berry.

1922 *Dodonaea viscosaformis* Berry (in Singewald & Berry), pp. 42, 107, pl. VII, f. 17.
 Occurrence: Pliocene; Bolivia (Corocoro and Potosi).

Dodonaea viscosoides Berry.

1914 *Dodonaea viscosoides* Berry, p. 142, pl. XXVIII, f. 4—8.
 1924 *Dodonaea viscosoides* Berry: Berry, pp. 70, 176, pl. XII f. 7, pl. XXXIV, f. 11—13, pl. XLII, f. 1.
 Occurrence: Eocene (Jackson, Yegua, Lisbon); Georgia, Louisiana, Missouri.

Dodonaea wilcoxiana Berry.

1916 *Dodonaea wilcoxiana* Berry, p. 270, pl. XXXVIII, f. 2.
 Remarks: Leaf, very similar to *D. viscosoides*; also resembles *Gaylussacia tertaria* Engelhardt (Ericaceae) from Bolivia.
 Occurrence: Eocene; Mississippi.

Dodonaea sp.

1883 *Dodonaea* sp.: Lesquereux, p. 182, pl. XXXVI, f. 5.
 1888 *Dodonaea* sp.: Schenk, p. 552, f. 314^b.
 1908 ?*Ptelea modesta* Cockerell, p. 98.
 1916 *Dodonaea* sp.: Knowlton, p. 276.

Remarks: Berry (1914, p. 143) suggests that this fruit belongs to *Ulmus*. Knowlton (1916, 1919) retains it in *Dodonaea*.
 Occurrence: Miocene; Colorado (Florissant).

Dodonaea sp.

1892 *Dodonaea* sp.: Bleicher & Fliche, p. 185.
 Occurrence: Tertiary (Bornkappel Beds); Alsace (Mulhouse).

[Dodonaea sp.]

Depape (1922, p. 216) states that *Dodonaea* sp., recorded by Boulay from the Pliocene of St. Marcel, is a leaf of *Notelea excelsa* Webb. (We have not seen Boulay's original reference.)

Dodonaeites Saporta.**Dodonaeites decaisnei Saporta.**1863 *Dodonaea* or *Fraxinus* Gervais, p. 318, pl. X, f. 8.1865a *Dodonaeites decaisnei* Saporta, p. 184, pl. IX, f. 13.1888 *Dodonaeites decaisneana* [sic] Saporta: Schenk, p. 552.

Remarks: Fruit. According to Reid and Chandler (Bembridge Flora 1926, p. 149) the difficulties in the ascription of this species to *Dodonaea* are insuperable.

Occurrence: Oligocene; S. France (Armissan).

Enourea Aublet.**Enourea tetraceraefolia Massalongo.**1858a *Enourea tetraceraefolia* Massalongo, p. 103 (Not seen).1858 *Enourea tetraceraefolia* Mass.: Massalongo & Scarabelli, p. 363, pl. XXXV, f. 17, a, b, c.1893 *Enourea tetraceraefolia* Mass.: Meschinelli & Squinabol, p. 367.

Occurrence: Miocene; Italy (Sinigaglia).

Eriocoelum Hooker f.**Eriocoelum cf. macrocarpum Gilg.**1920 *Eriocoelum cf. macrocarpum* Gilg: Menzel, p. 28.

Occurrence: ? Pleistocene; Kameroons.

Eriocoelum racemosum Radlkofler.1920 *Eriocoelum racemosum* Radlkofler: Menzel, p. 28.

Occurrence: ? Pleistocene; Kameroons.

Euphoria Comm. ex Juss.**[Euphoria jovis (Unger).]**

Synonym of *Nephelium jovis*, q. v.

[Euphoria phaetontis Massalongo.]

Synonym of *Euphoriospis phaetontis*, q. v.

Euphoriaecarpum Menzel 1913.**Euphoriaecarpum litchiforme Menzel.**1913 *Euphoriaecarpum litchiforme* Menzel, p. 43, pl. IV, f. 28, 29.

Remarks: A fragment of woody fruit wall, compared by Menzel with recent species of *Euphoria* and *Litchi*; also a seed, particularly resembling that of *Litchi*.

Occurrence: Miocene (?Lower); Lower Rhine (Herzogenrath).

Euphoriopsis Massalongo 1852, p. 12.**[Euphoriopsis berica Massalongo.]**

1852 Euphoriopsis berica Massalongo, p. 16, pl. III, f. 8, 9.
 1859 Euphoriopsis berica Mass.: Massalongo, p. 94.

1867 Euphoriopsis berica Mass.: Molon, p. 84.

Remarks: Heer (1856, p. 63) says that Massalongo's fig. 8 probably belongs to *Ficus multinervis* Heer, and that fig. 9 is probably a *Rhamnus*.

Occurrence: Oligocene; Italy (Salcedo).

Euphoriopsis phaeontis (Massalongo).

1851 Euphoria phaeontis Massalongo, p. 192.
 1852 Euphoriopsis phaeontis (Mass.) Massalongo, p. 14, pl. II, f. 5.

1859 Euphoriopsis phaeontis (Mass.): Massalongo, p. 93.

1893 Euphoriopsis phaeontis (Mass.): Meschinelli & Squinabol, p. 366.

1921 Euphoriopsis (?) phaeontis (Mass.): Principi, p. 92.

1926 Euphoriopsis (?) phaeontis (Mass.): Principi, p. 122.

Remarks: Listed by Principi (1926) with a query, but without further comment.

Occurrence: Oligocene; Italy (Chiavon).

Euphoriopsis scopoliana Massalongo.

1852 Euphoriopsis scopoliana Massalongo, p. 15, pl. II, f. 6. 7.

1859 Euphoriopsis scopoliana Mass.: Massalongo, p. 94.

1893 Euphoriopsis scopoliana Mass.: Meschinelli & Squinabol, p. 366.

Occurrence: Eocene; Italy (Monte Bolca).

Euphoriopsis torriana Massalongo.

[1857 *Rhamnus eridani* Unger: Massalongo, p. 26.]

1858a Euphoriopsis torriana Massalongo, p. 103 [Not seen].

1858 Euphoriopsis torriana Mass.: Massalongo & Scarabelli, p. 362, pl. XXVI—XXVII, f. 33, pl. XLIII, f. 2.

1893 Euphoriopsis torriana Mass.: Meschinelli & Squinabol, p. 366.

Occurrence: Miocene; Italy (Sinigaglia).

Fraasia Unger.**Fraasia sapindoides Unger.**

1850 Fraasia sapindoides Unger, p. 457.

1852 Fraasia sapindoides Unger: Massalongo, p. 24.

1861 Fraasia sapindoides Unger: Ettingshausen, p. 244.

1890 Fraasia sapindoides Unger: Kaiser, p. 26.

Remarks: Petrified wood, apparently never figured. Kaiser gives a reference to "Unger, Litteraturbericht der zool. botan. Gesellsch. zu Wien 1850—53, p. 267" but we have been unable to trace this.

Occurrence: Tertiary; probably Hungary.

Glossolepis Gilg.**Glossolepis macrobotrys Gilg.**

1920 *Glossolepis macrobotrys* Gilg: Menzel, p. 28.
Occurrence: ? Pleistocene; Kameroons.

Koelreuteria Laxmann.

For a review of the fossil species, see Edwards (1927).

Koelreuteria allenii (Lesquereux) Edwards.

1873 *Ophioglossum allenii* Lesquereux, p. 371.
 1878 *Salvinia allenii* (Lesq.) Lesquereux, p. 65, pl. V, f. 11.
 1883 *Salvinia allenii* (Lesq.): Lesquereux, p. 136, pl. XXI, f. 10, 11.
 1894 *Tmesipteris allenii* (Lesq.) Hollick, p. 256, pl. CCV, f. 12.
 1896 *Salvinia allenii* (Lesq.): Lindgren & Knowlton, p. 889.
 1908 *Tmesipteris allenii* (Lesq.): Cockerell, p. 77.
 1913 *Carpolithes allenii* (Lesq.) Cockerell, p. 500.
 1916 *Tmesipteris allenii* (Lesq.): Knowlton, p. 247.
 1919 *Phyllites allenii* (Lesq.) Florin, p. 254.
 1923 *Carpolithes allenii* (Lesq.): Hollick, p. 211, pl. X, f. 6—11; pl. XI, f. 1—3.
 1927 *Koelreuteria allenii* (Lesq.) Edwards, p. 109.

Remarks: Impressions of fruits. For accounts of this species see particularly Hollick (1923) and Edwards (1927).
Occurrence: Miocene; Colorado (Florissant).

Koelreuteria bettiana Massalongo.

1852 *Koelreuteria bettiana* Massalongo, p. 18, pl. IV, f. 13.
 1859 *Koelreuteria bettiana* Mass.: Massalongo, p. 94.
 1893 *Koelreuteria bettiana* Mass.: Meschinelli & Squinabol, p. 364.
 1921 *Koelreuteria bettiana* Mass.: Principi, p. 92.
 1926 *Koelreuteria (?) bettiana* Mass.: Principi, p. 76, pl. VI, f. 22.

Remarks: The generic reference of these leaves is uncertain, and Principi considers that they might belong to *Rhus*.
Occurrence: Oligocene; Italy (Chiavon).

Koelreuteria borealis Heer.

1876 *Koelreuteria borealis* Heer, p. 89, pl. XXV, f. 5.
 1888 *Koelreuteria borealis* Heer: Schenk, p. 549.
 Remarks: Leaf of doubtful affinity.
 Occurrence: Tertiary; Spitsbergen.

[Koelreuteria corcorifolia Massalongo.]

1859 *Koelreuteria corcorifolia* Massalongo, p. 94.
 Remarks: Nomen nudum.

[Koelreuteria gigas Massalongo.]

1859 *Koelreuteria gigas* Massalongo, p. 94.
 Remarks: Nomen nudum.

Koelreuteria macroptera (Kovats) Edwards.1856b *Ptelea macroptera* Kovats, p. 41, pl. I, f. 2.1870 *Ptelea macroptera* Kov.: Unger, p. 14, pl. V, f. 1.1874 *Ptelea macroptera* Kov.: Schimper p. 287.1888 *Ptelea macroptera* Kov.: Schenk, p. 531, f. 308⁶.1927 *Koelreuteria macroptera* (Kovats) Edwards, p. 112.

Remarks: Fruit impressions. Schenk points out that this cannot be a *Ptelea*.

Occurrence: Miocene; Hungary (Tallya and Szanto).

Koelreuteria maffeiana Massalongo.1852 *Koelreuteria maffeiana* Massalongo, p. 19, pl. IV, f. 14.1859 *Koelreuteria maffeiana* Mass.: Massalongo, p. 94.1893 *Koelreuteria maffeiana* Mass.: Meschinelli and Squinabol, p. 364.

Remarks: A pinnate leaf, not identifiable from Massalongo's figure.

Occurrence: Eocene; Italy (Monte Bolca).

Koelreuteria oeningensis Heer.1859 *Koelreuteria oeningensis* Heer, p. 63, pl. CXXI, f. 18—20.1861 *Koelreuteria oeningensis* Heer: Ettingshausen, p. 243.1870 *Koelreuteria cf. oeningensis* Heer: Würtenberger, p. 575.1873 *Koelreuteria oeningensis* Heer: Engelhardt, p. 31, pl. XII, f. 12.1874 *Koelreuteria oeningensis* Heer: Schimper, p. 170, pl. C, f. 33, 34.1880 *Koelreuteria "olviagensis* Heer": Laube, p. 278.1888 *Koelreuteria oeningensis* Heer: Schenk, p. 549, 553, f. 314³.1888 *Koelreuteria oeningensis* Heer: Lugeon, p. 174.1911 *Koelreuteria "olviagensis* Heer": Kafka, p. 63.1916 *Koelreuteria cf. oeningensis* Heer: Sangiorgi, p. 293 pl. XV, f. 19.1927 *Koelreuteria oeningensis* Heer: Edwards, p. 111.

Remarks: Heer's leaves may quite possibly be rightly referred to *Koelreuteria*, but the other records cannot be accepted without careful examination.

Friedrich (1883, p. 253) criticizes Engelhardt's reference of a leaf from Göhrn to this species.

Laube's record (with the name mis-spelt) from Sulloiditz, Bohemia, is unaccompanied by figures and is valueless. Sangiorgi's specimen from the Pliocene of Imola is very doubtful. Lugeon records "une belle feuille" from Langhian (Middle Miocene) beds of the valley of the Borde, but does not figure it.

Occurrence: Miocene; Oeningen, Baden.

Koelreuteria prisca Massalongo.1852 *Koelreuteria prisca* Massalongo, p. 17, pl. III, f. 10—12.1859 *Koelreuteria prisca* Mass.: Massalongo, p. 94.1893 *Koelreuteria prisca* Mass.: Meschinelli & Squinabol, p. 365.1921 *Koelreuteria prisca* Mass.: Principi, p. 92.1926 *Koelreuteria prisca* Mass.: Principi, p. 76, pl. VIII, f. 16.

Remarks: Heer (1859, p. 182), after seeing the originals of Massalongo's figs. 11 and 12, abandoned an earlier reference of these leaves to *Planera ungeri*. In 1866 however, Ettingshausen again referred them to *Planera*, and Nagelhard (Foss. Cat.,

parts 10) includes them in the synonymy of *Zelkova ungeri*. In view of Heer's statement that the specimens could scarcely be reconciled with the figures, it would seem best to regard these leaves as unidentifiable. Massalongo's fig. 10 is supposed to be a fruit, but is not recognizable.

Principi (1926) figures an imperfect leaf under this name, but admits that the attribution is uncertain, and also compares it with *Rhus pyrrhae*.

Occurrence: Oligocene; Italy (Chiavon, Salcedo).

Koelreuteria (?) reticulata (Ettingshausen) Edwards.

- 1854 *Dalbergia reticulata* Ettingshausen, p. 813, pl. IV f. 5.
- 1859 *Salvinia reticulata* (Ett.) Heer, p. 156, pl. CXIV, f. 16.
- 1869 *Salvinia reticulata* (Ett.): Schimper, p. 731.
- 1894 *Tmesipteris reticulata* (Ett.) Hollick, p. 256.
- 1904 *Salvinia reticulata* (Ett.): Brabeneec, p. 1, pl. f. 1.
- 1919 *Phyllites reticulatus* (Ett.) Florin, p. 255 (Non Heer).
- 1928 *Salvinia reticulata* (Ett.): Hollick, p. 207, pl. X, f. 4, 5.
- 1927 *Koelreuteria? reticulata* (Ett.) Edwards, p. 111.

Remarks: Quite probably a fruit of *Koelreuteria*.

Occurrence: Miocene; Hungary (Tokay), Baden (Oeningen). Oligocene: Bohemia.

[**Koelreuteria ? serrata** Heer.]

- 1878 *Koelreuteria? serrata* Heer, p. 52, pl. XIV, f. 10.

Remarks: Even Heer admits that this is "sehr zweifelhaft". It is an incomplete fragment, quite unidentifiable.

Occurrence: Miocene; Sakhalin.

[**Koelreuteria ulmifolia** Massalongo.]

- 1857 *Koelreuteria ulmifolia* Massalongo, p. 30.

Remarks: Later re-named *Cissus ulmifolia* by Massalongo (1858a, p. 80; Massalongo & Scarabelli 1858, p. 304, pl. I. f. 17, pl. XXVI, f. 8).

Koelreuteria vetusta Heer.

- 1859 *Koelreuteria vetusta* Heer, p. 63, pl. CXXVII, f. 39a.
- 1861 *Koelreuteria vetusta* Heer: Ettingshausen, p. 243.
- 1870 *Koelreuteria vetusta* Heer: Würtenberger, p. 575.
- 1874 *Koelreuteria vetusta* Heer: Schimper, p. 170.
- 1883 *Koelreuteria vetusta* Heer: Probst, p. 223.
- 1888 *Koelreuteria vetusta* Heer: Schenk, p. 549.
- 1927 *Koelreuteria vetusta* Heer: Edwards, p. 111.

Remarks: The venation differs from that of the living *K. paniculata* according to Schenk. The generic attribution is very doubtful. Würtenberger's and Probst's records are valueless.

Occurrence: Miocene; Oeningen.

Koelreuteria ?

- 1920 *Phyllites* cf. *Koelreuteria bipinnata* Franchet: Colani, p. 227, pl. IX, f. 4, 8.

Occurrence: Tertiary (?Mio-Pliocene); Yunnan (Totang).

Lychnodiscus Radkofer.**Lychnodiscus grandifolius** Radkofer.

1920 *Lychnodiscus grandifolius* Radlk.: Menzel, p. 28.
Occurrence: ? Pleistocene; Kamerons.

Lychnodiscus pedicellaris Radkofer.

1920 *Lychnodiscus pedicellaris* Radlk.: Menzel, p. 28.
Occurrence: ? Pleistocene; Kamerons.

Nephelites Deane, 1902, p. 60.**Nephelites berwickense** Deane.

1920b *Nephelites berwickense* Deane, p. 23, pl. VI, f. 9.
Occurrence: Tertiary; Victoria (Berwick).

Nephelites denticulata Deane.

1902 *Nephelites denticulata* Deane, p. 65, pl. XVI, f. 1.
Occurrence: Tertiary; New South Wales (Bungonia).

Nephelites equidentata Deane.

1902 *Nephelites equidentata* Deane, p. 61, pl. XV, f. 3.
Remarks: Deane compares this species, and also Ettingshausen's *Quercus dampieri*, with the living *Nephelium leiocarpum* F. v. M.
Occurrence: Tertiary; New South Wales (Wingello).

Nephelites ovata Deane.

1902 *Nephelites ovata* Deane, p. 61, pl. XVII, f. 3.
Occurrence: Tertiary; New South Wales (Wingello).

Nephelites quercifolia Deane.

1902b *Nephelites quercifolia* Deane, p. 22, pl. V, f. 11.
Occurrence: Tertiary; Victoria (Berwick).

Nephelites ulrichi Deane.

1902a *Nephelites ulrichi* Deane, p. 16, pl. I, f. 3.
1921 *Nephelites ulrichi* Deane: Chapman, p. 118, pl. VIII, f. 4.
Remarks: A worthless fragment.
Occurrence: Tertiary; Victoria (Pitfield).

Nephelites sp.?

1902b *Nephelites* sp.? Deane, p. 22, pl. VI, f. 10.
Occurrence: Tertiary; Victoria (Berwick).

Nephelium Linnaeus.**Nephelium jovis** Unger.

1867 *Nephelium jovis* Unger, p. 74, pl. XII, f. 24—27.
1874 *Nephelium jovis* Unger: Schimper, p. 169.

[1874 *Nephelium jovis* Unger: Capellini, p. 581, pl. V, f. 20.]
 1888 *Nephelium jovis* Unger: Schenk, pp. 549, 553, f. 314^a, 5.
 1893 *Euphoria* (*Nephelium*) *jovis* (Unger): Meschinelli & Squinabol, p. 364.

Remarks: Fruit and leaves, strongly suggesting the recent *Nephelium* and *Litchi*.

The Italian Miocene leaf figured under this name by Capellini should be excluded. Capellini himself suggested that it was very likely a *Celastrus*.

Occurrence: Miocene (Aquitanian); Kumi, Euboea.

Nephelium verbeekianum Geyler.

1877 *Nephelium verbeekianum* Geyler, p. 83, pl. I, f. 6.
 1884 *Phyllites geyleri* Ettingshausen, p. 382.

Remarks: Geyler compared his leaf with *Sapindus anceps*, but admitted that the preservation was not good. Kräusel (1925, p. 335) states that it is indeterminable.

Occurrence: Tertiary; Borneo.

Pancovia Willdenow.

Pancovia pedicellaris Radlkofer.

1920 *Pancovia pedicellaris* Radlkofer: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

Pancovia subcuneata Radlkofer.

1920 *Pancovia subcuneata* Radlkofer: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

Paullinia Linnaeus.

Paullinia ambigua Massalongo.

1852 *Paullinia ambigua* Massalongo, p. 23, pl. VI, f. 26.
 1859 *Paullinia ambigua* Mass.: Massalongo, p. 95.
 1893 *Paullinia ambigua* Mass.: Meschinelli & Squinabol, p. 358.
 1921 *Paullinia ambigua* Mass.: Principi, p. 91.
 1926 *Paullinia ambigua* Mass.: Principi, p. 70, pl. VIII, f. 15.

Remarks: In 1856 Heer referred this species and *P. chiavonica* to *Planera ungeri*, but after examining the original specimens, and finding that they did not agree with the figures, he abandoned this reference (Heer 1859, p. 182). Nagalhard in the Fossilium Catalogus, pars 10 (1922) includes them both in the synonymy of *Zelcovia ungeri*. Principi's figure of a fragmentary leaf is not convincing. These species cannot be regarded as good evidence for the occurrence of *Paullinia* in Italian Tertiary Beds.

Occurrence: Oligocene; Italy (Chiavon).

Paullinia chiavonica Massalongo.

1851 *Quercus bilimica* (non Unger) Massalongo, p. 129.
 1852 *Paullinia chiavonica* Massalongo, p. 20, pl. IV, f. 15—18, pl. V, f. 19.
 1852 *Paullinia protogaea* Massalongo, p. 21, pl. V, f. 20—22.
 1859 *Paullinia chiavonica* Mass.: Massalongo, p. 94.
 1893 *Paullinia chiavonica* Mass.: Meschinelli & Squinabol, p. 359.

1921 *Paullinia chiavonica* Mass.: Principi, p. 91.
 1926 *Paullinia chiavonica* Mass.: Principi, p. 71, pl. VIII, f. 7—10,
 18.

Remarks: See *P. ambigua*. Compared by Principi with "Koelreuteria prisca Heer" (presumably, from the reference given, he means *K. oenningensis*). The resemblance to *Planera ungeri* is also noted.

Occurrence: Oligocene; Italy (Chiavon).

Paullinia dispersa Saporta.

1865a *Paullinia dispersa* Saporta, p. 183, pl. VIII, f. 7.
 1874 *Paullinia dispersa* Sap.: Schimper, p. 162, pl. C f. 26.
 1888 *Paullinia dispersa* Sap.: Schenk, p. 549.

Remarks: Somewhat resembles *Rhus pyrrhae* and other fossil species of *Rhus*, according to Saporta, who compares it with living species of *Serjania*, *Paullinia* and *Schmidelia*, particularly with *Schmidelia (Allophyllus) fulvinervis*.

Occurrence: Oligocene; S. France (Armissan).

Paullinia furcinervis Velenovsky.

1881 *Paulinia* [sic] *furcinervis* Velenovsky, p. 39, pl. VIII, f. 20.
 Occurrence: Miocene; Bohemia (Laun).

Paullinia germanica Unger.

1866 *Paullinia germanica* Unger, p. 52, pl. XVI, f. 8.
 1874 *Paullinia germanica* Unger: Schimper, p. 162.
 1888 *Paullinia germanica* Unger: Schenk, p. 549.
 Remarks: "Gehört schwerlich einer Sapindacee an und ist überhaupt kein fiederblatt". (Schenk).
 Occurrence: Oligocene; Wetterau (Salzhausen).

[**Paullinia italicica** Massalongo.]

1859 *Paullinia italicica* Massalongo, p. 95.
 Remarks: Nomen nudum.

[**Paullinia maraschiniana** Massalongo.]

1852 *Paullinia maraschiniana* Massalongo, p. 22, pl. VI, f. 25.
 1859 *Paullinia maraschiniana* Mass.: Massalongo, p. 95.
 1867 *Paullinia maraschiniana* Mass.: Molon, p. 84.
 1893 *Paullinia maraschiniana* Mass.: Meschinelli & Squinabol, p. 359.

Remarks: Referred to *Rhus pyrrhae* Unger by Principi (1926, p. 68).

Occurrence: Oligocene; Italy (Vicetino).

Paullinia pinnata Linnaeus.

1920 *Paullinia pinnata* Linnaeus: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

[**Paullinia protogaea** Massalongo.]

Synonym of *Paullinia chiavonica*, q. v.

[*Paullinia rubifolia* Massalongo.]

1859 *Paullinia rubifolia* Massalongo, p. 95.

Remarks: Nomen nudum.

***Paullinia schimperi* Principi.**

1921 *Paullinia schimperi* Principi, p. 91 (nomen).

1926 *Paullinia schimperi* Principi, p. 71, pl. VIII, f. 21.

Remarks: Compared by Principi with *Koelreuteria maffeiana* Mass., and with the living *P. cururu* and *P. pinnata*

Occurrence: Oligocene; Italy (Chiavon).

[*Paullinia vivianica* Massalongo.]

1852 *Paullinia vivianica* Massalongo, p. 21, pl. VI, f. 23, 24.

1859 *Paullinia vivianica* Mass.: Massalongo, p. 94.

1893 *Paullinia vivianica* Mass.: Meschinelli & Squinabol, p. 359.

Remarks: Referred to *Rhus pyrrhae* Unger by Principi (1926, p. 68).

Occurrence: Oligocene; Italy (Chiavon).

[? *Paullinia*.]

1895 *Phyllites gouareoides* Engelhardt, p. 22, pl. III, f. 2.

Remarks: Engelhardt suggests a relationship to *Paullinia* (*P. affinis* St. Hil.).

Occurrence: Tertiary; Ecuador.

[*Pentacoila* F. v. Mueller, 1877a, p. 179.]

Remarks: Von Mueller states that "this genus ought probably to be placed near *Penteune*". Later he thought that its nearest affinity was with his *Tricoilocaryon*, and both these genera were tentatively referred to the Sapindaceae.

[*Pentacoila gulgongensis* Mueller.]

1877a *Pentacoila gulgongensis* Mueller, p. 179.

1878 (Sept.) *Pentacoila gulgongensis* Mueller, p. 40, pl. XV, f. 19, 20.

1883 *Pentacoila gulgongensis* Mueller, p. 12, pl. XV, f. 19, 20.

Occurrence: Pliocene; New South Wales.

[*Penteune* Mueller, 1873, p. 41.]

Remarks: Regarded by von Mueller as probably Sapindaceae. Deane, however (1925, p. 490) compares it with *Owenia* (Meliaceae).

[*Penteune allporti* Mueller.]

1880 *Penteune allporti* Mueller: Johnston, p. 85.

1882 *Penteune allporti* Mueller in Johnston, expl. of f. 40, 41.

1888 *Penteune allporti* Mueller: Johnston, pp. 227, 278, 285.

Remarks: The only description we have traced is the following from Johnston (1882) "A species of *Penteune* (calcareous), probably *P. allporti* F. v. M., n. s. for [?] from Geilston Travertine. Fig. 41 has been shown with six valves, by mistake, should be five nearly equal divisions."

Occurrence: Tertiary; Tasmania.

[Penteune brachyclinis Mueller.]

1873 Penteune brachyclinis Mueller, p. 41, pl. VIII, f. 1—9.
 1874a Penteune brachyclinis Mueller, p. 21, pl. VIII, f. 1—9.
 Occurrence: Pliocene; Victoria.

[Penteune clarkei Mueller.]

1873 Penteune clarkei Mueller, p. 41, pl. VII, f. 1—10.
 1874a Penteune clarkei Mueller, p. 21, pl. VII.
 1880 Penteune clarkei Mueller: Johnston, p. 85.
 1925 Penteune clarkei Mueller: Deane, p. 490, pl. LX, f. 1—3.
 Remarks: Compared by Deane with *Owenia venosa* (Meliaceae).
 Occurrence: Pliocene; Victoria and New South Wales.

[Penteune trachyclinis Mueller.]

1873 Penteune trachyclinis Mueller, p. 41, pl. VIII, f. 10—17.
 1874a Penteune trachyclinis Mueller, p. 22, pl. VIII, f. 10—17.
 Occurrence: Pliocene; Victoria.

Phialodiscus Radikofer.

Phialodiscus myrmecophilus Gilg.

1920 cf. Phialodiscus myrmecophilus Gilg: Menzel, p. 28.
 Occurrence: ? Pleistocene; Kameroons.

Phyllites sp.

1883 Phyllites sp.: Nathorst, p. 212, pl. XIX, f. 7.
 1884 Phyllites sp.: Ettingshausen, p. 862.
 Remarks: Ettingshausen considers this to be *Sapindus*—probably *Sapindus undulatus*.
 Occurrence: Tertiary; Japan.

[Phymatocaryon Mueller, 1871, p. 47.]

Remarks: Von Mueller considered that these fruits were probably Sapindaceous. Deane, however, in 1925 (p. 491) compared *P. mackayi* with *Elaeocarpus*. According to Berry the botanical position of *Phymatocaryon* is entirely problematical.

[Phymatocaryon angulare Mueller.]

1874a Phymatocaryon angulare Mueller, p. 23, pl. X, f. 1—4.
 Occurrence: Pliocene; Victoria.

[Phymatocaryon bivalve Mueller.]

1877a Phymatocaryon bivalve Mueller, p. 180.
 1879 Phymatocaryon bivalve Mueller: Mueller, p. 170, pl. III, f. 3.
 1883 Phymatocaryon bivalve Mueller: Mueller, p. 9, pl. XV, f. 6—9.
 1925 Phymatocaryon bivalve Mueller: Deane, p. 491, pl. LX, f. 4—6.
 1926 Phymatocaryon bivalve Mueller: Berry, p. 183, figs. 1—3.
 Occurrence: Pliocene; New South Wales, Victoria, New Zealand.

[Phymatocaryon mackayi Mueller.]

1871 Phymatocaryon mackayi Mueller, p. 47, pl. II, f. 1—15.
 1874a Phymatocaryon mackayi Mueller: Mueller, p. 10, pl. II.
 1883 Phymatocaryon mackayi Mueller: Mueller, p. 14.
 1925 Phymatocaryon mackayi Mueller: Deane, p. 491, pl. LX, f. 13—16.

Remarks: Compared by Deane with *Elaeocarpus* spp.

Occurrence: Pliocene; Victoria, New South Wales, Tasmania.

Sapindaceae genus?

1915 Sapindaceae — Genus? C. & E. M. Reid, p. 112, pl. XI, f. 17.

Remarks: An incomplete fruit probably belonging to the *Paullinieae*.

Occurrence: Pliocene; Holland (Reuver).

Sapindoides Perkins, 1904, p. 206.

Established for sapindaceous fruits of uncertain affinity.

Sapindoides americanus (Lesquereux).

1853 [Fruit]: Hitchcock, f. 7, 8, p. 99.
 1861 *Sapindus americanus* Lesquereux, p. 359.
 1861a *Sapindus americanus* Lesq.: Lesquereux, p. 715, f. 142—145.
 1904 *Sapindoides americanus* (Lesq.) Perkins, p. 207, pl. LXXX, f. 119, 140.
 1905 *Sapindoides americanus* (Lesq.): Perkins, p. 508, pl. LXXXVI, f. 3.
 1906 *Sapindoides americanus* (Lesq.): Perkins, p. 221, pl. LII, f. 3, pl. LVII, f. 14, 15. (The last two figures are labelled *S. varius* on the plate.)
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides cylindricus Perkins.

1904 *Sapindoides cylindricus* Perkins, p. 208, pl. LXXX, f. 131, 139.
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides mediis Perkins.

1904 *Sapindoides mediis* Perkins, p. 207, pl. LXXX, f. 130.
 1905 *Sapindoides mediis* Perkins: Perkins, p. 507, pl. LXXXVI, f. 1.
 1906 *Sapindoides mediis* Perkins: Perkins, pl. LII, f. 1.
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides minimus Perkins.

1904 *Sapindoides minimus* Perkins, p. 208, pl. LXXX, f. 127.
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides parva Perkins.

1904 *Sapindoides parva* Perkins, p. 207, pl. LXXX, f. 126.
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides peruvianus Berry.

1927 *Sapindoides peruvianus* Berry, p. 126, pl. XIX, f. 9, 9a.
 Occurrence: Oligocene; Peru (Paita).

Sapindoides urceolatus Perkins.

1906 *Sapindoides urceolatus* Perkins, p. 220, pl. LVII, f. 11, 12.
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides varius Perkins.

1904 *Sapindoides varius* Perkins, p. 206, pl. LXXX, f. 116, 117,
 122.
 1905 *Sapindoides varius* Perkins: Perkins, p. 508, pl. LXXXVI,
 f. 2.
 1906 *Sapindoides varius* Perkins: Perkins, pl. LIII, f. 2.
 Remarks: Figures 14 and 15 on plate LVII, Perkins 1906
 are labelled *S. varius*, but are described on p. 221 as *S. americanus*.
 Occurrence: Eocene; Vermont (Brandon).

Sapindoides vermontanus Perkins.

1904 *Sapindoides vermontanus* Perkins, p. 207, pl. LXXX, f. 132,
 135.
 Occurrence: Eocene; Vermont (Brandon).

Sapindophyllum Ettingshausen.**Sapindophyllum acuminatum** Ettingshausen.

1869 *Sapindophyllum acuminatum* Ettingshausen, p. 27.
 1911 *Sapindophyllum acuminatum* Ett.: Kafka, p. 29.
 Remarks: Schimper (1874, p. 168) says that this and
 other species from Bilin described by Ettingshausen are very
 problematical. Schenk (1888, p. 551) also remarks that they
 are partly founded on incomplete and poorly preserved leaves.
 Occurrence: Oligocene; Bohemia (Kutschlin).

Sapindophyllum apiculatum (Velenovsky).

1884 *Sapindus apiculatus* Velenovsky, p. 6, pl. VII, f. 1—8.
 1888 *Sapindus apiculatus* Vel.: Schenk, p. 550.
 1889 *Sapindophyllum apiculatum* (Vel.) Velenovsky, pp. 51, 54, 57.
 1896 *Sapindus apiculatus* Vel.: Krasser, p. 131, pl. XII, f. 4.
 1898a *Sapindus apiculatus* Vel.: Hollick, p. 133, pl. XIII, f. 1, 2.
 1901 *Sapindus apiculatus* Vel.: Fritsch & Bayer, p. 137.
 1903 *Sapindus apiculatus* Vel.: Berry, p. 84.
 1906 *Sapindus apiculatus* Vel.: Berry, p. 139.
 1906 *Sapindus apiculatus* Vel.: Hollick, p. 91, pl. XXXIII, f. 21.
 Occurrence: Cretaceous (Cenomanian); Bohemia. Cretaceous
 (Magothy); New York, New Jersey.

Sapindophyllum brevior Saporta.

1894 *Sapindophyllum brevior* Saporta, p. 205, pl. XXXVII, f. 11.
 (*S. brevius* in explanation of plate).
 Occurrence: Cenomanian; Portugal (Nazareth).

Sapindophyllum coriaceum Ettingshausen.

1887 *Sapindophyllum coriaceum* Ettingshausen, p. 187, pl. IX, f. 22, 23.
 1890 *Sapindophyllum coriaceum* Ett.: Ettingshausen, p. 306, pl. XXXII, f. 22, 23.
 Occurrence: Upper Cretaceous; New Zealand (Wangapeka, Nelson).

Sapindophyllum denticulatum Menzel.

1914 *Sapindophyllum denticulatum* Menzel, p. 61, pl. II, f. 16.
 Occurrence: Miocene; Switzerland (Gnippion).

Sapindophyllum dubium Ettingshausen.

1869 *Sapindophyllum dubium* Ettingshausen, p. 27, pl. XLVI, f. 21.
 Remarks: See *S. acuminatum*.
 Occurrence: Miocene; Bohemia (Schichow).

[*Sapindiphyllum dubium* Nathorst, non Ett.]

1888 *Sapindiphyllum dubium* Nathorst, p. 212, pl. XXII, f. 5.
 Remarks: Nathorst says that the relationship with *Sapindus* is uncertain and also compares the leaf with *Aesculus*, *Sterculia* and *Rhus*. The specific name is preoccupied by Ettingshausen, and the spelling *Sapindiphyllum* is merely a variant of the earlier *Sapindophyllum*. It is not worth while to make a new name for this dubious fragment.
 Occurrence: Miocene; Japan (Todohara).

Sapindophyllum falcatum Ettingshausen.

1869 *Sapindophyllum falcatum* Ettingshausen, p. 27, pl. XLVI, f. 23.
 1885 *Sapindophyllum falcatum* Ett.: Engelhardt, p. 352, pl. XXI, f. 22.
 1911 *Sapindophyllum falcatum* Ett.: Kafka, p. 29.
 Remarks: See *S. acuminatum*.
 Occurrence: Oligocene; Bohemia (Kutschlin).

Sapindophyllum paradoxum Ettingshausen.

1885 *Sapindophyllum paradoxum* Ettingshausen, p. 21, pl. XXXI, f. 4, 4a.
 1888 *Sapindophyllum paradoxum* Ett.: Schenk, p. 551.
 Remarks: Schenk considers it doubtful whether this is a pinnate leaf. Ettingshausen compares it with *Cupania*, *Sapindus* and *Paulinia*.
 Occurrence: Oligocene; Carniola (Sagor).

Sapindophyllum pelagicum (Unger) Velenovsky.

1850 *Phyllites pelagicus* Unger, p. 503.
 1867a *Phyllites pelagicus* Unger: Unger, p. 653, pl. II, f. 13.
 1884 *Sapindophyllum pelagicum* (Unger) Velenovsky, p. 7, pl. VII, f. 9, pl. VIII, f. 6-9.
 1888 *Sapindophyllum pelagicum* (Unger): Schenk, p. 550.
 1889 *Sapindophyllum pelagicum* (Unger): Velenovsky, pp. 51, 54.
 1901 *Sapindophyllum pelagicum* (Unger): Fritsch & Bayer, p. 138.

Remarks: Bayer (1920, p. 61) considers that one of Velenovsky's specimens (1884, pl. VII, f. 9), from Vyserovic, belongs to the Bombacaceae and he renames it *Pachira pelagica*. He does not think that Velenovsky's other specimens, which came from Kaunitz, belong to the same species, and he agrees with Velenovsky that the Kaunitz specimens closely resemble Unger's *Phyllites pelagicus*.

Velenovsky also compares these forms with Heer's *Daphnophyllum crassinervium* from Moletein.

Occurrence: Cretaceous (Cenomanian); Bohemia.

Sapindophyllum spinuloso-dentatum

Ettingshausen.

1869 *Sapindophyllum spinuloso-dentatum* Ettingshausen, p. 26, pl. XLVI, f. 27.

1891a *Sapindophyllum spinuloso-dentatum* Ett.: Engelhardt, p. 37.

1911 *Sapindophyllum spinuloso-dentatum* Ett.: Kafka, p. 29.

Remarks: See *S. acuminatum*.

Occurrence: Oligocene and Aquitanian; Bohemia (Kutschlin, Holaikluk).

Sapindophyllum subapiculatum Saporta.

1894 *Sapindophyllum subapiculatum* Saporta, p. 205, pl. XXXVI, f. 10, 11, pl. XXXVII, f. 4, 5, 10a, 17.

Occurrence: Cenomanian; Portugal (Nazareth).

Sapindophyllum sp.

1890 *Sapindophyllum* sp.: Marion, p. 1054.

Occurrence: Turonian; Martigues (Bouches-du-Rhone).

Sapindophyllum sp.

1906 *Sapindophyllum* sp.: Krasser, p. 42.

Occurrence: Senonian; Lower Austria (Grünbach).

Sapindopsis Fontaine, 1889, p. 296.

Remarks: Berry (1910) compares this genus with the living *Matayba* Aublet, of tropical America.

Sapindopsis belviderensis Berry.

1922b *Sapindopsis belviderensis* Berry, p. 216, pls. XLIX—LIV.

Occurrence: Upper Cretaceous (Cheyenne Sandstone); Kansas.

Sapindopsis brevifolia Fontaine.

1889 *Sapindopsis brevifolia* Fontaine, p. 300, pl. CLIII, f. 4, pl. CLV, f. 1, 7, pl. CLXIII, f. 3.

1905 *Sapindopsis brevifolia* Font.: Fontaine in Ward, pp. 481, 482, 528.

1910 *Sapindopsis brevifolia* Font.: Berry, p. 644.

1911 *Sapindopsis brevifolia* Font.: Berry, p. 473, pl. LXXXVII, f. 2—5.

1922b *Sapindopsis brevifolia* Font.: Berry, p. 216, pl. LV, f. 1, pl. LIX, f. 1.

Remarks: Probably represents a variant of *S. variabilis*. (Berry 1922b).

Occurrence: Cretaceous (Patapsco); Virginia, Maryland. Upper Cretaceous (Cheyenne Sandstone); Kansas.

[*Sapindopsis cordata* Fontaine.]

1889 *Sapindopsis cordata* Fontaine, p. 296, pl. CXLVII, f. 1.

Remarks: Included by Berry (1911, p. 505), in *Ficophyllum oblongifolium* (Font.), which is regarded by Knowlton (1919, p. 269) as a synonym of *Ficophyllum crassinerve* Font.

[*Sapindopsis elliptica* Fontaine.]

1889 *Sapindopsis elliptica* Fontaine, p. 297, pl. CXLVII, f. 3.

Remarks: Synonym of *Rogersia longifolia* Fontaine (teste Berry, 1910).

***Sapindopsis magnifolia* Fontaine.**

1889 *Sapindopsis magnifolia* Fontaine, p. 297, pl. CLI, f. 2, 3; pl. CLII, f. 2, 3; pl. CLIII, f. 2; pl. CLIV, f. 1, 5; pl. CLV, f. 6.

1889 *Sapindopsis obtusifolia* Fontaine, p. 301, pl. CLVI, f. 13; pl. CLIX, f. 3—6. (teste Berry, 1910).

1889 *Ficophyllum eucalyptoides* Fontaine, p. 294, pl. CLXIV, f. 1, 2. (teste Berry, 1910).

1889 ?*Aralia dubia* Fontaine, p. 314, pl. CLVII, f. 1, 7, (non Schimper, 1874), (teste Berry, 1910).

1889 *Sapindopsis tenuinervis* Fontaine, p. 301, pl. CLIII, f. 1. (teste Berry, 1910).

1892 *Rhus uddeini* Lesquereux, p. 154, pl. LVII, f. 2 (teste Berry, 1922b).

1895 *Rhus uddeini* Lesq.: Knowlton, p. 212.

1898 ?*Aralia fontainei* Knowlton, p. 37 (teste Berry, 1911).

1905 *Sapindopsis tenuinervis* Font.: Fontaine in Ward, pp. 489, 528.

1905 *Sapindopsis magnifolia* Font.: Fontaine in Ward, pp. 481, 482, 489, 528.

1905 *Ficophyllum eucalyptoides* Font.: Fontaine in Ward, p. 489.

1910 *Sapindopsis magnifolia* Font.: Berry, p. 642.

1911 *Sapindopsis magnifolia* Font.: Berry, p. 471, pl. LXXXVI: pl. LXXXVII, f. 1; pl. LXXXVIII.

1922b *Sapindopsis magnifolia* Font.: Berry, p. 214, pl. LV, f. 5; pl. LVI; pl. LVII, f. 2; pl. LIX, f. 3.

Remarks: In addition to the names included in the synonymy, Berry (1922b, p. 215) mentions the following species recorded by Lesquereux (1892) which "although I do not feel justified in transferring them to *Sapindopsis*, are more or less open to suspicion": *Aralia masoni* Lesq., *Laurus angusta* Heer, *Leguminosites hymenophyllum* Lesq., *Sapindus diversifolius* Lesq., and *Rhus powelliana* Lesq.

Occurrence: Cretaceous (Patapsco, Fuson, Cheyenne Sandstone); Virginia, Maryland, Wyoming, Kansas.

[*Sapindopsis obtusifolia* Fontaine.]

Synonym of *Sapindopsis magnifolia* Fontaine, q. v.

[*Sapindopsis oregonensis* Fontaine.]

1905 *Sapindopsis oregonensis* Fontaine, in Ward, p. 268, pl. LXIX, f. 15—17.

Remarks: Renamed *Nilssonia oregonensis* (Font.) by Berry (1910, p. 637).

[*Sapindopsis parvifolia* Fontaine.]

Synonym of *Sapindopsis variabilis*, q. v.

[*Sapindopsis tenuinervis* Fontaine.]

Synonym of *Sapindopsis magnifolia*, q. v.

***Sapindopsis variabilis* Fontaine.**

1889 *Sapindopsis variabilis* Fontaine, p. 298, pl. CLI, f. 1; pl. CLII, f. 1, 4; pl. CLIII, f. 3; pl. CLIV, f. 2—4; pl. CLV, f. 2—5.

1889 *Sapindopsis parvifolia* Fontaine, p. 300, pl. CLIV, f. 6. (teste Berry, 1910).

1899 *Sapindopsis variabilis* Font.: Fontaine, p. 690, pl. CLXIX, f. 9.

1905 *Rogersia angustifolia* Fontaine, in Ward, pp. 491, 510 [not p. 521] (teste Berry, 1911).

1905 *Ficus myricoides* Hollick: Ward, p. 531, pl. CXII, f. 12. (teste Berry, 1911).

1905 *Eucalyptus roseriana* Ward, p. 530, pl. CXIII, f. 9, 10. (teste Berry, 1911).

1905 *Sapindopsis variabilis* Font.: Fontaine in Ward, pp. 481, 482, 489, 532, pl. CXIV, f. 2.

1911 *Sapindopsis variabilis* Font.: Berry, p. 469, pl. LXXXIII—LXXXV.

1916 *Sapindopsis variabilis* Font.: Cockerell, p. 110.

1922b *Sapindopsis variabilis* Font.: Berry, p. 213, pl. LV, f. 2—4.

Remarks: Berry has examined Cockerell's material from Colorado, and states that it is very inconclusive.

Occurrence: Cretaceous (Patapsco, Fuson, Cheyenne Sandstone); Maryland, Virginia, Wyoming, Kansas, ?Colorado.

***Sapindoxylo* Kräusel.**

***Sapindoxylo* Janssonii Kräusel.**

1922 *Sapindoxylo janssonii* Kräusel, p. 256, pl. I, f. 9; pl. II f. 3; pl. III, f. 6; pl. V, f. 5; pl. VI, f. 2.

1922 ?*Sapindoxylo janssonii* Kräusel, p. 258, pl. I, f. 8.

Remarks: Wood.

Occurrence: Lower Miocene; Sumatra (Barissan Mts., Benkulen). ?Upper Miocene; Sumatra (Palembang).

***Sapindus* Tournefort ex Linnaeus.**

[*Sapindus acuminatoides* Engelhardt.]

1904a *Sapindus acuminatoides* Engelhardt, p. 323.

Remarks: Doubtless a misprint for *Celastrus acuminatoides* described on p. 353.

[**Sapindus acuminatus** Engelhardt (non Rafinesque,
non Wallich).]

Synonym of *Sapindus engelhardtii*, q. v.

Sapindus aemulus Heer.

1881a *Sapindus aemulus* Heer, p. 21, pl. II, f. 5a.

1925 *Sapindus aemulus* Heer: Kräusel, pp. 337, 338.

Remarks: According to Kräusel, this is at any rate sapindaceous.

Occurrence: Tertiary; Sumatra.

Sapindus affinis Newberry.

1868 *Sapindus affinis* Newberry, p. 51.

1870 *Sapindus affinis* Newb.: Newberry, p. 52.

1874 *Sapindus affinis* Newb.: Schimper, p. 168.

1878b *Sapindus affinis* Newb.: Lesquereux, pl. XXIV, f. 1; pl. XXV f. 2. [Not seen].

1883 *Sapindus affinis* Newb.: Dawson, p. 32.

1885 *Sapindus affinis* Newb.: Ward, p. 554, pl. L, f. 2. 3.

1887 *Sapindus affinis* Newb.: Ward, p. 67, pl. XXX, f. 1 2.

1887 *Sapindus affinis* Newb.: Dawson, p. 29.

1898 *Sapindus affinis* Newb.: Newberry, p. 116, pl. XXX, f. 1: pl. XL, f. 2.

1899 *Sapindus affinis* Newb.: Knowlton, p. 736, pl. CII f. 1—3.

1908 *Sapindus affinis* Newb.: Leonard, p. 49.

1909 *Sapindus affinis* Newb.: Knowlton, pp. 185, 189, 191, 201, 202, 211, 214.

1909 *Sapindus affinis* Newb.: Dowling, p. 31.

1910 *Sapindus affinis* Newb.: Dowling, p. 13.

1912 *Sapindus affinis* Newb.: Knowlton, p. 198.

1918 *Sapindus affinis* Newb.: Knowlton, p. 331, pl. XCIX, f. 3.

1924 *Sapindus affinis* Newb.: Berry, p. 72, pl. XII, f. 8.

Occurrence: Eocene (Raton, Fort Union, Lance, Lisbon); Montana, Colorado, N. Dakota, Wyoming, Mississippi, Saskatchewan.

?Upper Cretaceous (Laramie); N. W. Territories of Canada.

[**Sapindus alatus** Ward, non Salisbury.]

Synonym of *Sapindus glendivenis*, q. v.

[**Sapindus americanus** Lesquereux.]

Synonym of *Sapindoides americanus*, q. v.

Sapindus anceps Heer.

1874a *Sapindus macrophyllus* Heer, p. 16, pl. III, f. 3 [Non *Sapindus portula*].

1881a *Sapindus anceps* Heer, p. 20.

1925 *Sapindus anceps* Heer: Kräusel, p. 337.

Occurrence: Tertiary; Sumatra.

[**Sapindus anconitanus** Paolucci.]

Synonym of *Sapindus hazslinszkyi*, q. v.

Sapindus angustifolius Lesquereux.

1874a *Sapindus angustifolius* Lesquereux, p. 415.
 1878a *Sapindus angustifolius* Lesq.: Lesquereux, p. 265, pl. XLIX,
 f. 3—7. [non f. 2].
 [1880 *Sapindus angustifolius* Lesq.: Ettingshausen, p. 235.]
 1883 *Sapindus angustifolius* Lesq.: Lesquereux, p. 181, pl.
 XXXVII, f. 1, 2, 6, 8 [non 3, 5, 7]; pl. XXXIX f. 12.
 1885 *Sapindus angustifolius* Lesq.: Ward, p. 554, pl. LI, f. 1—3.
 1887 *Sapindus angustifolius* Lesq.: Ward, p. 68, pl. XXXI, f.
 5—7.
 1888 *Sapindus angustifolius* Lesq.: Lesquereux, p. 15, 35.
 [1901 *Sapindus angustifolius* Lesq.: Squinabol, p. 53.]
 1902 *Sapindus angustifolius* Lesq.: Knowlton, p. 79.
 [1908 *Sapindus angustifolius* Lesq.: Lauby, p. 156.]
 [1910 *Sapindus angustifolius* Lesq.: Lauby, pp. 122, 372.]
 1919 *Sapindus angustifolius* Lesq.: Knowlton, p. 577.
 [1921 *Sapindus angustifolius* Lesq.: Principi, p. 92.]
 [1926 *Sapindus angustifolius* Lesq.: Principi, p. 75, pl. III, f. 5.]

Remarks: Knowlton says (1919, p. 577), "This is a homonym of *S. angustifolius* Blume. The leaves that have long been known as *Sapindus angustifolius* Lesquereux are obviously in confusion. Some have been removed under the names *S. coloradensis* Cockerell and *S. leonis* Cockerell; the remainder are unassigned. Pending critical studies the species is permitted to stand".

In addition to Cockerell's two species (q. v.), some specimens formerly ascribed to *S. angustifolius* are now named *S. mississippiensis* (q. v.), and others *S. formosus* (q. v.).

In view of this confusion it is obvious that Squinabol's record of this species from the Eocene of Novale, Italy (1901) cannot stand. Squinabol does not figure his specimens, and, moreover, he compares it particularly with one of Lesquereux's figures which is now included in *S. coloradensis*. It would, however, be unwise to regard Squinabol's fragmentary specimen as a European record of *S. coloradensis*.

Ettingshausen's and Lauby's unfigured references to *S. angustifolius* are also valueless. Principi (1926) figures a pinnate leaf from Chiavon under this name, but again the ascription is not, in our opinion, admissible. This leaf resembles one figured by Principi (1916, pl. LXXXV, f. 11) as *S. dubius*, but the latter figure is not mentioned in the text, and moreover it appears to be much smaller and narrower than the typical *S. dubius*.

The question of the possible specific identity of European with North American Tertiary dicotyledons is one which will require careful study; most of the occasional identifications so far made among the Sapindaceae have been particularly unfortunate. (Cf. also the remarks on *S. dimidiatus*, *S. dubius*, *S. undulatus* etc.).

Occurrence: Eocene; Oregon and Montana. Miocene; Colorado. (See also remarks).

[*Sapindus apiculatus* Velenovsky.]

Synonym of *Sapindophyllum apiculatum*, q. v.

***Sapindus argentinus* Berry.**

1925 *Sapindus argentinus* Berry, p. 208, pl. II, f. 4.
 Occurrence: Miocene; Patagonia.

Sapindus asperifolius Ettingshausen.

1885 *Sapindus asperifolius* Ettingshausen, p. 20, pl. XXXI, f. 7,
7a.

Remarks: Very near *S. falcifolius*. The supposed papillate
surface may not be original.

Occurrence: Oligocene; Carniola (Sagor).

Sapindus basilicus (Unger) Unger.

1850 *Juglans basilica* Unger, p. 470.

1866 *Sapindus basilicus* (Unger) Unger, p. 50, pl. XVI, f. 2—4.

1869 *Sapindus basilicus* (Unger): Ettingshausen, p. 25, pl. XLVII,
f. 13.

1874 *Sapindus basilicus* (Unger): Schimper, p. 166.

1879 *Sapindus basilicus* (Unger): Engelhardt, p. 296.

1888 *Sapindus basilicus* (Unger): Schenk, p. 550.

1911 *Sapindus basilicus* (Unger): Kafka, pp. 29, 42.

1922 *Sapindus basilicus* (Unger): Engelhardt, p. 93, pl. XXXI, f.
3.

Remarks: Schenk considers that the flowers referred to
this species by Unger (1866) are possibly sapindaceous, but
the preservation is not good enough for this to be certain. There
was no evidence of connexion with the leaf on which the
species was founded. Ettingshausen and Engelhardt figure
leaves only.

Occurrence: Upper Eocene; Germany (Hessen). Oligocene;
Bohemia (Bilin basin). Miocene; Croatia (Radoboj).

Sapindus bentonensis Berry.

1916 *Sapindus bentonensis* Berry, p. 273, pl. LXVII, f. 4.

Occurrence: Eocene (Wilcox); Arkansas and Texas.

Sapindus bilinicus Ettingshausen.

1869 *Sapindus bilinicus* Ettingshausen, p. 24, pl. XLVII, f. 4—7

1874 *Sapindus bilinicus* Ett.: Schimper, p. 167.

1881a *Sapindus bilinicus* Ett.: Wentzel, p. 262.

1888 *Sapindus bilinicus* Ett.: Schenk, p. 550.

1891c *Sapindus bilinicus* Ett.: Engelhardt, p. 183, pl. XV, f. 1,
3—10; pl. XVI, f. 1.

1891a *Sapindus bilinicus* Ett.: Engelhardt, p. 37.

1898 *Sapindus bilinicus* Ett.: Engelhardt, p. 105.

1908 *Sapindus bilinicus* Ett.: Reininger, p. 510.

1911 *Sapindus bilinicus* Ett.: Kafka, p. 29.

1921 *Sapindus bilinicus* Ett.: Principi, p. 91.

1922 *Sapindus bilinicus* Ett.: Depape, p. 192, pl. XV, f. 10—12.

1926 *Sapindus bilinicus* Ett.: Principi, p. 72, pl. VIII, f. 13.

Remarks: Schenk (1888) mentions doubtful flowers of
this species, but we have not found any earlier reference to
them in the literature. Engelhardt (1891c) figures fruits under
this name, as well as leaves.

Occurrence: Oligocene; Italy (Chiavon), Bohemia (Bilin
basin, Berand). Pliocene; France (Théziers).

[**Sapindus bolcensis** Massalongo.]

Synonym of *Sapindus pristinus*, q. v.

Sapindus brandzai Marion & Laurent.1898 *Sapindus brandzai* Marion & Laurent, p. 209, pl. II, f. 10.Remarks: Resembles *S. falcifolius*.

Occurrence: Miocene; Rumania (Săcele).

Sapindus cassioides Ettingshausen.1869 *Sapindus cassioides* Ettingshausen, p. 26, pl. XLVI, f. 1—7.1874 *Sapindus cassioides* Ett.: Schimper, p. 167.1880 *Sapindus cassioides* Ett.: Sieber, p. 87, pl. II, f. 12.1885 *Sapindus cassioides* Ett.: Engelhardt, p. 351, pl. XIX, f. 6, 7, 10; pl. XXI, f. 13, 16.1888 *Sapindus cassioides* Ett.: Ettingshausen, p. 27.1898 *Sapindus cassioides* Ett.: Engelhardt, p. 105.1898 *Sapindus cassioides* Ett.: Menzel, p. 16.1903 *Sapindus cassioides* Ett.: Menzel, p. 17.1911 *Sapindus cassioides* Ett.: Kafka, pp. 29, 42, 63.1914 *Sapindus cassioides* Ett.: Principi, p. 184.1916 *Sapindus cassioides* Ett.: Principi, p. 136, pl. LXIII, f. 4, 6—8, pl. LXXXV, f. 11.Remarks: According to Schimper and Principi, the generic attribution is doubtful. The leaves resemble those of *Carya heerii* (Ett.).

Occurrence: Oligocene; Bohemia (Kundratitz, Kutschlin etc.), Italy (S. Giustina). Miocene; Bohemia (Kostenblatt), Styria (Leoben).

Sapindus caudatus Lesquereux.1873 *Sapindus caudatus* Lesquereux, p. 380, 397.1871 *Sapindus caudatus* Lesq.: Schimper, p. 610.1878a *Sapindus caudatus* Lesq.: Lesquereux, p. 264, pl. XLVIII, f. 6.1888 *Sapindus caudatus* Lesq.: Lesquereux, p. 24.1909 *Sapindus caudatus* Lesq.: Stanton, p. 272.1918 *Sapindus caudatus* Lesq.: Knowlton, p. 330, pl. C, f. 2.Remarks: In Knowlton 1917 (p. 330), *Nyssa lanceolata* Lesquereux (1878a, pl. XXXV, f. 5) is included as a synonym of *S. caudatus*, but in Knowlton 1919 (p. 413) it is again listed as *Nyssa lanceolata*.

Occurrence: Eocene (Denver, Wilcox, Raton); Colorado, Louisiana and New Mexico.

Sapindus coloradensis Cockerell.1878a *Sapindus angustifolius* Lesquereux (pars) pl. XLIX, f. 2.1883 *Sapindus angustifolius* Lesquereux (pars) pl. XXXVII, f. 3—5.1908 *Sapindus coloradensis* Cockerell, p. 101, pl. IV, f. 31.Remarks: See *S. angustifolius*.

Occurrence: Miocene; Colorado (Florissant).

[**Sapindus coriaceus** Lesquereux.]1874 *Sapindus coriaceus* Lesquereux, p. 415.1878a *Sapindus coriaceus* Lesq.: Lesquereux, p. 265, pl. XLIX, f. 12—14.1883 *Sapotacites copeanus* Ettingshausen, p. 136.1888a *Sapotacites copeanus* Ett.: Ettingshausen, p. 57.

1888 *Sapindus coriaceus* Lesq.: Lesquereux, p. 24.
 1919 *Sapotacites coriaceus* (Lesq.) Knowlton, p. 582.

Remarks: Ettingshausen founded his species *Sapotacites copeanus* on Lesquereux's figure 13, and stated that figure 14 might remain as *Sapindus coriaceus*. He does not mention figure 12. Knowlton in his catalogue included both of these in *Sapotacites* without further comment. Lesquereux's figure 14 is of an exceedingly poor fragment, and figure 12, if a *Sapindus*, might well belong to some other species. It is probably best to follow Knowlton and transfer *Sapindus coriaceus* to *Sapotacites*.

Occurrence: Eocene; Louisiana. Miocene; Nevada.

Sapindus coushatta Berry.

1899 *Juglans rugosa* Lesquereux: Hollick, p. 280, pl. XXXV, f. 1.
 [non f. 2].
 1916 *Sapindus coushatta* Berry, p. 273, pl. LXV, f. 5.

Occurrence: Eocene (Wilcox); Louisiana.

[**Sapindus crassinervis** Ettingshausen.]

1880 *Sapindus crassinervis* Ettingshausen, p. 235.
Remarks: Nomen nudum.

Sapindus cupanioides Ettingshausen.

1869 *Sapindus cupanioides* Ettingshausen, p. 25, pl. XLVII, f. 3.
 1874 *Sapindus cupanioides* Ett.: Schimper, p. 167.
 1885 *Sapindus cupanioides* Ett.: Engelhardt, p. 351.
 1896 *Sapindus cupanioides* Ett.: Engelhardt, p. 170.
 1901 *Sapindus cupanioides* Ett.: Squinabol, p. 55.
 1911 "*Dodonaea cupanioides* Ett.": Kafka, p. 63.
 1914 *Sapindus cupanioides* Ett.: Principi, p. 184.
 1916 *Sapindus cupanioides* Ett.: Principi, p. 136, pl. LXIII, f. 12.
 1921 *Sapindus cupanioides* Ett.: Principi, p. 91.
 1922 *Sapindus cupanioides* Ett.: Engelhardt, p. 93, pl. XXXII,
 f. 10.
 1926 *Sapindus cupanioides* Ett.: Principi, p. 72, pl. III, f. 6.
Occurrence: Eocene; Italy (Novale), Hessen (Messel).
 Oligocene; Italy (S. Giustina, Chiavon). Oligocene and Miocene;
 Bohemia (Bilin basin).

Sapindus dalmaticus Visiani.

1858 *Sapindus dalmaticus* Visiani, p. 438, pl. XV, f. 1, 2.
 1861 *Sapindus dalmaticus* Vis.: Ettingshausen, p. 245.
Occurrence: Oligocene; Dalmatia.

Sapindus defunctus Heer.

1878 *Sapindus defunctus* Heer, p. 50, pl. XIV, f. 11.
Remarks: Should probably be united with *S. falcifolius*.
 Represented by a single incomplete leaf.
Occurrence: Miocene (Heer); Sakhalin.

Sapindus densifolius Heer.

1859 *Sapindus densifolius* Heer, p. 62, pl. CXX, f. 1.
 1861 *Sapindus densifolius* Heer: Ettingshausen, p. 245.
 1864 *Sapindus densifolius* Heer: Gaudin & Strozzi, p. 21.

1869a *Sapindus densifolius* Heer: Heer, p. 94, pl. XXIX, f. 13,
13b.

1874 *Sapindus densifolius* Heer: Schimper, p. 164.

1876 *Sapindus densifolius* Heer: Peruzzi, p. 75.

1888 *Sapindus densifolius* Heer: Schenk, p. 551.

1893 *Sapindus densifolius* Heer: Meschinelli & Squinabol, p. 360.

1895 *Sapindus densifolius* Heer: Keller, p. 325, pl. VI, f. 4.

1898 *Sapindus densifolius* Heer: Almera, p. 686.

1911 *Sapindus densifolius* Heer: Engelhardt, p. 379, pl. XLI, f. 63.
Remarks: Very close to *S. falcijolius*, and should perhaps
be united with it.

Occurrence: Oligocene: Prussia (Rixhöft), Hessen (Flörsheim). Miocene: Baden and Switzerland. Pliocene: Italy (Tuscany), Spain (Barcelona).

Sapindus dentoni Lesquereux.

1876 *Sapindus dentoni* Lesquereux, p. 315.

1876a *Sapindus dentoni* Lesq.: Lesquereux, p. 388.

1878a *Sapindus dentoni* Lesq.: Lesquereux, p. 265, pl. LXIV,
f. 2—4.

1923 *Sapindus dentoni* Lesq.: Knowlton, p. 166.

1923 *Sapindus dentoni* Lesq.: Trowbridge, p. 97.

1924 *Sapindus dentoni* Lesq.: Berry, pp. 73, 177, pl. XII, f. 9.

Occurrence: Eocene (Green River, Claiborne, Jackson);
Utah, Mississippi, Texas, Wyoming.

Sapindus dimidiatus (Visiani & Massalongo) comb. nov.

1854 *Cassia dimidiata* Visiani & Massalongo, p. 124.

1858 *Cassia dimidiata* Visiani & Massalongo, p. 240, pl. XIII,
f. 1.

1858 *Cassia dimidiata* Vis. & Mass.: Massalongo & Scarabelli,
p. 433, pl. XXXV, f. 28; pl. XXXIX, f. 11.

1893 *Cassia dimidiata* Vis. & Mass.: Meschinelli & Squinabol,
p. 465.

1901 *Sapindus obtusifolius* Lesq.: Squinabol, p. 54.

1921 *Sapindus obtusifolius* Lesq.: Principi, p. 92.

1926 *Sapindus obtusifolius* Lesq.: Principi, p. 75, pl. VIII, f. 14.

Remarks: In the opinion of Squinabol (1901) the leaf described by Visiani and Massalongo as *Cassia dimidiata* is a *Sapindus*, and he refers it to *Sapindus obtusifolius* Lesq. It seems unwise, without careful comparison of the actual specimens, to combine the Italian and American leaves, and the former should therefore be called *Sapindus dimidiatus*. Even if the two should prove to be identical, this name would still stand, as it is earlier than Lesquereux's.

Occurrence: Eocene; Italy (Novale). Oligocene; Italy (Chiavon). Miocene; Italy (Sinigaglia).

Sapindus diversifolius Lesquereux.

1892 *Sapindus diversifolius* Lesquereux, p. 158, pl. LXIV, f. 18.

Remarks: Perhaps a *Sapindopsis*; see remarks on *Sapindopsis magnolia*.

Occurrence: Cretaceous (Dakota); Ellsworth Co., Kansas.

Sapindus drepanophyllus Saporta.

1873 *Sapindus drepanophyllus* Saporta, p. 93, pl. XIII, f. 4, 5.

1874 *Sapindus drepanophyllus* Saporta: Schimper, p. 701.

Remarks: "Très-voisin du *S. falcifolius* et semblable au *S. acuminatus* Wall. des Indes. et surtout au *S. monatensis* Shuttl. de la Florida." (Schimper).

Occurrence: Oligocene; S. France (Aix).

Sapindus dubius Unger.

1854 *Sapindus dubius* Unger, p. 180, pl. V, f. 11.
 1857 *Juglans acuminata* [non A. Braun] Massalongo, p. 24.
 1858 *Sapindus dubius* Unger: Massalongo & Scarabelli, p. 358, pl. XXIX, f. 24.
 1859 *Sapindus dubius* Unger: Heer, p. 63, CXX, f. 9—11.
 1864 *Sapindus dubius* Unger: Gaudin & Strozzi, p. 21.
 1867 *Sapindus dubius* Unger: Stur, p. 179.
 1870 *Sapindus dubius* Unger: Ettingshausen, p. 82.
 1874 *Sapindus dubius* Unger: Schimper, p. 164.
 1877 *Sapindus dubius* Unger: Ettingshausen, p. 190.
 1880 *Sapindus dubius* Unger: Engelhardt, p. 144, pl. VIII, f. 16.
 1887 *Sapindus dubius* Unger: Boulay, p. 270.
 1887 *Sapindus dubius* Unger: Cavara, p. 149, pl. VI, f. 5.
 1888 *Sapindus dubius* Unger: Ettingshausen, p. 26.
 1892 *Sapindus dubius* Unger: Keller, p. 108, pl. IV, f. 4.
 1893 *Sapindus dubius* Unger: Meschinelli & Squinabol, p. 360.
 1897 *Sapindus dubius* Unger: Almera, p. 160.
 1901 *Sapindus dubius* Unger: Squinabol, p. 54.
 1910 *Sapindus dubius* Unger: Lauby, p. 372.
 1911 *Sapindus dubius* Unger: Kafka, p. 62.
 1914 *Sapindus dubius* Unger: Engelhardt, p. 303, pl. XII, f. 5.
 1914 *Sapindus dubius* Unger: Principi, p. 184.
 1916 *Sapindus dubius* Unger: Principi, p. 135, pl. LXIII, f. 10.
 1921 *Sapindus dubius* Unger: Principi, p. 92.
 1922 *Sapindus dubius* Unger: Engelhardt, p. 93, pl. XXXI, f. 7.
 1926 *Sapindus dubius* Unger: Principi, p. 74, pl. VIII, f. 12; pl. IX, f. 5.

Remarks: Ettingshausen (1861, p. 245; 1869, p. 25) and Engelhardt (1876, p. 390) included this species in the synonymy of *S. hirsutissimum*, but later both authors seem to have abandoned this reference, without making any comment on the matter. Boulay (1887) thinks the two species are the same, but Principi (1926) gives reasons for keeping them separate.

A specimen from Kentucky referred to *S. dubius* by Lesqueux (1888, p. 12) is, according to Berry (1916, p. 186), a leaf of *Engelhardtia ettingshausenii*; other specimens belong to *Ficus wilcoxensis* Berry (1916, p. 202).

See also the remarks on *S. angustifolius*.

Occurrence: Eocene: Italy (Novale); Hessen (Messel). Oligocene: Italy (S. Giustina, Chiavon), Carniola (Sagor). Miocene: Baden (Oeningen), Switzerland, Italy, Styria, Transylvania, Bohemia. Pliocene: Italy (Mongardino), Spain (Espluga), France (Ardèche).

Sapindus sp., cf. *dubius* Unger.

1885 *Sapindus sp., cf. dubius* Unger: Medlicott, p. 98.
 Occurrence: Middle Tertiary; India (Kasaoli Range).

Sapindus engelhardtii nom. nov.

1890 *Sapindus acuminatus* Engelhardt, p. 4.
 1891 *Sapindus acuminatus* Engelhardt, p. 670, pl. IX, f. 10.

1922 *Sapindus acuminatus* Engelh.: Berry, pp. 82, 84, 127.

R e m a r k s : Berry states (1922, p. 96) that this leaf appears to be correctly identified as a *Sapindus*. In order to avoid confusion with the living *Sapindus acuminatus* Rafinesque of America (= *S. marginatus*), it seems advisable to create a new name.

O c c u r r e n c e : Lower Miocene; Chile.

[*Sapindus eocenicus* Ettingshausen.]

1879 *Sapindus eocenicus* Ettingshausen, p. 395.

1880 *Sapindus eocenicus* Ettingshausen, p. 235.

R e m a r k s : Nomen nudum.

***Sapindus eoligniticus* Berry.**

1916 *Sapindus eoligniticus* Berry, p. 276, pl. LXVII, f. 1—3; pl. CIX, f. 3.

O c c u r r e n c e : Eocene (Lagrange); Tennessee, Kentucky.

***Sapindus ephialtae* (Ettingshausen) Visiani.**

1854 *Artocarpidium ephialtae* Ettingshausen, p. 30, pl. VII, f. 10.

1858 *Sapindus ephialtae* (Ett.) Visiani, p. 439, pl. XVI, f. 3.

1861 *Sapindus ephialtae* (Ett.): Ettingshausen, p. 245.

1872 *Artocarpidium ephialtae* Ett.: Schimper, p. 755.

1914 *Sapindus ephialtae* (Ett.): Principi, p. 184.

1916 *Sapindus ephialtae* (Ett.): Principi, p. 135, pl. LXIII, f. 1, 2.

1921 *Sapindus ephialtae* (Ett.): Principi, p. 92.

1926 *Sapindus ephialtae* (Ett.): Principi, p. 73.

O c c u r r e n c e : Oligocene; Dalmatia (Monte Promina), Italy (S. Giustina, Chiavon).

[*Sapindus erdobenyensis* Kovats.]

Synonym of *Sapindus falcifolius*, q. v.

***Sapindus falcifolius* (A. Br.)**

1836 *Juglans falcifolia* Al. Braun in Buckland, p. 513.

1845 *Juglans falcifolia* A. Br.: Al. Braun, p. 170.

1848 *Juglans falcifolia* A. Br.: Unger, p. 509.

1850 *Juglans falcifolia* A. Br.: Unger, p. 469.

1850 *Juglans falcifolia* A. Br.: Al. Braun in Bruckmann, p. 234.

1850 *Zanthoxylon salignum* Al. Braun in Bruckmann, p. 233.

1851 *Sapindus falcifolius* (A. Br.) Al. Braun in Stizenberger, p. 87.

1853 *Sapindus falcifolius* (A. Br.): Heer, p. 146.

1853 *Sapindus longifolius* Heer, p. 146 (nomen).

1854 *Sapindus falcifolius* (A. Br.): Ettingshausen, p. 809, pl. IV, f. 1.

1856a *Sapindus falcifolius* (A. Br.): Heer, p. 95.

1856 *Sapindus erdöbenyensis* Kovats, p. 32, pl. VII, f. 4, 5.

1856a *Sapindus falcifolius* (A. Br.): Kovats, p. 41.

1858 *Sapindus falcifolius* (A. Br.): Massalongo & Scarabelli, p. 359, pl. XXXIII, f. 8; pl. XXXIV, f. 2.

1858 *Sapindus falcifolius?* (A. Br.): Gaudin & Strozzi, p. 37, pl. XII, f. 9, 10.

1859 *Sapindus falcifolius* (A. Br.): Heer, p. 61, pl. CXIX; pl. CXX, f. 2—8; pl. CXXI, f. 1, 2; p. 299 note.

1859 *Sapindus falcifolius* (A. Br.): Massalongo, p. 93.

1859 *Sapindus falcifolius* (A. Br.): Sismonda, p. 531.
 1861 *Sapindus falcifolius* (A. Br.): Ettingshausen, p. 244.
 1862 *Sapindus falcifolius* (A. Br.): Jokely, p. 379.
 1862 cf. *Sapindus falcifolius* (A. Br.): De la Harpe & Salter, p. 117.
 1864 *Sapindus falcifolius* (A. Br.): Gaudin & Strozzi, p. 21, pl. II, f. 16.
 1865 *Sapindus falcifolius* (A. Br.): Sismonda, p. 448, pl. XXIX, f. 1, 2.
 1867 *Sapindus falcifolius* (A. Br.): Molon, p. 83.
 1867 *Sapindus falcifolius* (A. Br.): Stur, p. 179.
 1867 *Sapindus erdöbényensis* Kovats: Stur, p. 179.
 1869 *Sapindus falcifolius* (A. Br.): Ettingshausen, p. 24.
 1869a *Sapindus falcifolius* (A. Br.): Heer, p. 94, pl. XVIII, f. 2c; pl. XXVIII, f. 12b.
 1870 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 26, pl. VII, f. 4.
 1870 *Sapindus falciformis* [sic] (A. Br.): Ettingshausen, p. 82.
 1870 *Sapindus falcifolius* (A. Br.): Hofmann, p. 527.
 1870 *Sapindus erdöbényensis* Kovats: Unger, p. 12, pl. IV, f. 13, 14.
 1870 *Sapindus falcifolius?* (A. Br.): Wurtenberger, p. 575.
 1870a *Hymenaea fenzlii* Ettingshausen, p. 896, pl. II, f. 5, 6 (teste Schenk).
 1874 *Sapindus falcifolius* (A. Br.): Geyler, p. 104.
 1874 *Sapindus falcifolius* (A. Br.): Schimper, p. 163, pl. C, f. 35—37.
 1874 *Sapindus falcifolius* (A. Br.): Capellini, p. 580, pl. VI, f. 13—15.
 1876 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 389, pl. VII (XXII), f. 11, 12.
 1877 *Sapindus falcifolius* (A. Br.): Ettingshausen, p. 189.
 1878 *Sapindus falcifolius* (A. Br.): Zwanziger, p. 72, pl. XXVI, f. 4.
 1879 *Sapindus falcifolius* (A. Br.): Sandberger, p. 180.
 1879 *Sapindus falcifolius* (A. Br.): Sieber, p. 242.
 1880 *Sapindus falcifolius* (A. Br.): Sieber, p. 86, pl. III, f. 10, 11.
 1880 *Sapindus falcifolius* (A. Br.): Laube, p. 278.
 1880 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 144, pl. VIII, f. 13—15.
 1881a *Sapindus falcifolius* (A. Br.): Engelhardt, p. 155.
 1881 *Sapindus falcifolius* (A. Br.): Heer, p. 35, pl. XXVIII, f. 2.
 1881 *Sapindus falcifolius* (A. Br.): Wentzel, p. 91.
 1881a *Sapindus falcifolius* (A. Br.): Wentzel, p. 261.
 1883 *Sapindus falcifolius* (A. Br.): Pilar, p. 99, pl. XII, f. 1, 3.
 1883 *Sapindus falcifolius* (A. Br.): Probst, p. 223.
 1885 *Sapindus falcifolius* (A. Br.): Sacco, p. 277.
 1885 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 351, pl. XVIII, f. 9, 13, 14.
 1886 *Sapindus falcifolius* (A. Br.): Sacco, p. 86.
 1887 *Sapindus falcifolius* (A. Br.): Boulay, p. 270.
 1887 *Sapindus falcifolius* (A. Br.): Cavara, p. 149, pl. V, f. 21.
 1887 *Sapindus falcifolius* (A. Br.): Stefani, p. 225.
 1888 *Sapindus falcifolius* (A. Br.): Schenk, p. 550, f. 313.
 1888 *Sapindus falcifolius* (A. Br.): Ettingshausen, p. 342, pl. VIII, f. 11.
 1889 *Sapindus falcifolius* (A. Br.): Meschinelli, p. 287.
 1891c *Sapindus falcifolius* (A. Br.): Engelhardt, p. 184, pl. XV, f. 11.
 1892 *Sapindus falcifolius* (A. Br.): Keller, p. 107, pl. IX, f. 2.
 1893 *Sapindus falcifolius* (A. Br.): Meschinelli & Squinabol, p. 360.
 1895 *Sapindus falcifolius* (A. Br.): Peola, p. 65 [not seen].

1896 *Sapindus falcifolius* (A. Br.): Paolucci, p. 118, pl. XX, f. 143—144.
 1896 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 171.
 1896 *Sapindus falcifolius* (A. Br.): Keller, p. 317, pl. X, f. 6.
 1898 *Sapindus falcifolius* (A. Br.): Peola, p. 82.
 1898 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 105.
 1899 *Sapindus falcifolius* (A. Br.): Laurent, p. 126, pl. XIII, f. 7, 8.
 1899a *Sapindus falcifolius* (A. Br.): Peola, p. 105.
 1900 *Sapindus falcifolius* (A. Br.): Peola, p. 246.
 1902 *Sapindus falcifolius* (A. Br.): Dreger, p. 97.
 1902 *Sapindus falcifolius* (A. Br.): Kerner, p. 344.
 1902 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 286, pl. IV, f. 24.
 1903 *Sapindus falcifolius* (A. Br.): Menzel, p. 17.
 1904 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 352, f. 3.
 1904a *Sapindus falcifolius* (A. Br.): Engelhardt, p. 403, pl. XCVII, f. 23.
 1905 *Sapindus falcifolius* (A. Br.): Laurent, p. 203.
 1907 *Sapindus falcifolius* (A. Br.): Kerner, p. 139.
 1908 *Sapindus falcifolius* (A. Br.): Andrews, p. 220.
 1909 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 496, pl. XXVIII, f. 9, 11.
 1910 *Sapindus falcifolius* (A. Br.): Lauby, p. 372.
 1910a *Sapindus falcifolius* (A. Br.): Engelhardt, p. 152, pl. II, f. 2.
 1911 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 378, pl. XLI, f. 56.
 1911 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 418, pl. XLIV, f. 15.
 1911 *Sapindus falcifolius* (A. Br.): Kafka, pp. 29, 42, 53, 62.
 1912 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 617, pl. XXXIII, f. 11.
 1913 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 389, pl. II, f. 7, 11.
 1914 *Sapindus falcifolius* (A. Br.): Engelhardt, pl. XV, f. 2, 3, 5.
 1914 *Sapindus falcifolius* (A. Br.): Principi, p. 184.
 1916 *Sapindus falcifolius* (A. Br.): Principi, p. 133, pl. LXIII, f. 3, 5, 14—16.
 1921 *Sapindus falcifolius* (A. Br.): Principi, p. 91.
 1922 *Sapindus falcifolius* (A. Br.): Engelhardt, p. 92, pl. XXX, f. 1.
 1926 *Sapindus falcifolius* (A. Br.): Principi, p. 122.

Remarks: The commonest and most widely-spread Tertiary representative of the *Sapindaceae* in Europe. In addition to some almost complete leaves from Oeningen, Heer figures fruits, which Schenk (1888) considers doubtful, since similar fruits are found in other genera and families. Sieber also (1880) figures a somewhat obscure fruit.

The inclusion of *S. erdőbényensis* is universally accepted. There are several other species which are certainly very near *S. falcifolius*, and some of them should probably be united with it. Among these are: *S. asperifolius*, *S. brandzai*, *S. defunctus*, *S. densifolius*, *S. drepanophyllus*, *S. primaevus*, *S. pristinus* and *S. radobojanus*. According to Schenk (1889, p. 694) Ettingshausen's *Hymenaea fenzlii* from Radoboj is "kaum etwas anders als der bekannte *Sapindus falcifolius*".

Engelhardt (1876 and 1902) includes *S. ungeri* in the synonymy of *S. falcifolius*. Pilar (1883) copies this, (for he copies Engelhardt's mistake in the date of Unger's paper), but evidently does not really accept it, since he treats *S. ungeri* separately on a later

page. Heer (1869a) thinks that both *S. ungeri* and *S. heliconius* belong to *S. falcifolius*.

A specimen from Kentucky referred to *S. falcifolius* by Lesquereux (1888, p. 12, pl. IV, f. 4) is included in *Ficus wilcoxensis* by Berry (1916, p. 202).

S. falcifolius has been compared with the living *S. marginatus* of the southern United States (Braun, Schenk), with *S. surinamensis* and *S. frutescens* of tropical America (Heer and other authors), and with *S. mukurosi* of Japan (Laurent).

Heer refers to this species the specimen figured by Knorr, Sammlung von Merkwürdigkeiten, I, 1755, pl. IXa, fig. 4.

Occurrence: Eocene: Hessen (Darmstadt), England (Corfe Castle). Oligocene: Italy (Liguria, Vicentino), France (Oélas), Germany (Flörsheim, Rixhöft), Bohemia, Transylvania, Car-niola (Sagor). Miocene: Switzerland, Italy, Dalmatia, Bosnia, Herzegovina, Croatia, Styria, Hungary, Bohemia, Germany, France, Portugal. Pliocene: Italy, France (Cantal, La Mougudo).

Sapindus firmifolius Engelhardt.

1922 *Sapindus firmifolius* Engelhardt, p. 94, pl. XXXI, f. 9.

Occurrence: Eocene; Hessen (Messel near Darmstadt).

Sapindus formosus Berry.

1888 *Sapindus angustifolius* Lesquereux, p. 24.

1916 *Sapindus formosus* Berry, p. 276, pl. LXVI, f. 3—7.

1917 *Sapindus formosus* Berry: Berry, p. 62.

Occurrence: Eocene; Mississippi, Louisiana, Tennessee, Kentucky.

Sapindus fragmentarius Saporta.

1863 *Sapindus fragmentaria* Saporta, p. 87.

1874 *Sapindus fragmentarius* Sap.: Schimper, p. 164.

Occurrence: Oligocene; France (St. Zacharie).

[*Sapindus fraxinifolius* Ettingshausen (non DC., non Blume).]

Synonym of. *S. pythii*, q. v.

Sapindus georgianus Berry.

1914 *Sapindus georgiana* Berry, p. 143, pl. XXVII, f. 11, 12.

1924 *Sapindus georgianus* Berry, pp. 71, 177.

Remarks: Nearly related to *S. saponaria* L.

Occurrence: Eocene (Jackson, Lisbon, Yegua); Georgia, Mississippi, Texas.

Sapindus glendivensis Knowlton.

1885 *Sapindus alatus* Ward, p. 554, pl. L, f. 9, 10 (non Salisbury).

1887 *Sapindus alatus* Ward: Ward, p. 68, pl. XXXI, f. 3, 4.

1899 *Sapindus alatus* Ward: Knowlton, p. 737.

1919 *Sapindus glendivensis* Knowlton, p. 579.

Occurrence: Eocene (Fort Union); Montana, Yellowstone National Park.

[*Sapindus goppertianus* Massalongo.]

1859 *Sapindus goppertianus* Massalongo, p. 92.

Remarks: Nomen nudum.

***Sapindus gossei* Ettingshausen.**

1886 *Sapindus gossei* Ettingshausen, p. 126, pl. XIV, f. 15—17.

1888a *Sapindus gossei* Ett.: Ettingshausen, p. 161, pl. XIV, f. 15—17.

Occurrence: Tertiary; Australia.

***Sapindus graecus* Unger.**

1862 *Sapindus ungeri* Ettingshausen: Unger, p. 176, f. 42.

1867 *Sapindus graecus* Unger, p. 73, pl. XII, f. 1—23.

1867 *Rhus helladotherii* Unger, p. 78, pl. XIV, f. 14 (not f. 15) [teste Fritel].

1867 *Persoonia euboea* Unger, p. 57, pl. VIII, f. 13 [teste Fritel].

1868 *Sapindus ungeri* Ett.: Saporta, p. 321.

1874 *Sapindus graecus* Unger: Schimper, p. 167.

1921 *Sapindus graecus* Unger: Fritel, p. 472.

1922 *Sapindus graecus* Unger: Fritel, p. 127.

Remarks: This species was at first placed in *S. ungeri* by Unger. Schimper remarks that it is near *S. ungeri*, if indeed it is a *Sapindus*. The species has recently been revised by Fritel.

Occurrence: Aquitanian; Greece, Kumi (Euboea) and Oropo (Attica).

***Sapindus grandifolioloides* Knowlton.**

1899 *Sapindus grandifolioloides* Knowlton, p. 738, pl. C, f. 2.

Occurrence: Miocene; Yellowstone National Park.

***Sapindus grandifoliolus* Ward.**

1885 *Sapindus grandifoliolus* Ward, p. 554, pl. L, f. 4—8.

1887 *Sapindus grandifoliolus* Ward: Ward, p. 67, pl. XXX, f. 3—5; pl. XXXI, f. 1, 2.

1899 *Sapindus grandifoliolus* Ward: Knowlton, p. 737, pl. XCIX, f. 1, 2; pl. CII, f. 4.

1909 *Sapindus grandifoliolus* Ward: Knowlton, pp. 189, 190, 195, 198, 203, 210, 211, 213, 214.

1911 *Sapindus grandifoliolus* Ward: Knowlton in Leonard, pp. 541—542.

1911 *Sapindus grandifoliolus* Ward: Knowlton, p. 369, 370.

1912 *Sapindus grandifoliolus* Ward: Knowlton, pp. 426, 481.

Occurrence: Eocene (Fort Union, Lance); Montana, Wyoming, N. Dakota.

***Sapindus grandifolius* Engelhardt.**

1881 *Sapindus grandifolius* Engelhardt, p. 310, pl. XXI, f. 1.

1887 *Sapindus grandifolius* Engelhardt: Cavara, p. 150 pl. VI, f. 9, 16.

1893 *Sapindus grandifolius* Engel.: Meschinelli & Squinabol, p. 361.

Occurrence: Miocene; Bohemia (Grasseth). Pliocene; Italy (Mongardino).

Sapindus hazslinszkyi Ettingshausen.

1854 *Sapindus hazslinszkyi* Ettingshausen, p. 809, pl. IV, f. 2.
 1856a *Sapindus hazslinszkyi* Ett.: Kovats, p. 41.
 1858 *Sapindus hazslinszkyi* Ett.: Massalongo & Scarabelli, p. 360, pl. XXXIII, f. 1.
 1859 *Sapindus hazslinszkyi* Ett.: Sismonda, p. 531.
 1861 *Sapindus haszlinskyi* Ett.: Ettingshausen, p. 245.
 1865 *Sapindus haslinskyi* Ett.: Sismonda, p. 448, pl. XXIX, f. 3.
 1866 *Sapindus hazslinszkyi* Ett.: Stur, p. 189.
 1867 *Sapindus haszlinskyi* Ett.: Stur, p. 179.
 1869 *Sapindus haszlinskyi* Ett.: Ettingshausen, p. 25, pl. XLIII, f. 13; pl. XLVII, f. 1, 2.
 1874 *Sapindus hazslinszkyi* Ett.: Schimper, p. 168.
 1876 *Sapindus haszlinskyi* Ett.: Engelhardt, p. 390, pl. VII (XXII), f. 13.
 1879 *Sapindus haszlinskyi* Ett.: Engelhardt, p. 296.
 1885 *Sapindus hazslinszkii* Ett.: Sacco, p. 277.
 1886 *Sapindus haslinskyi* Ett.: Sacco, p. 86.
 1891a *Sapindus haszlinskii* Ett.: Engelhardt, p. 34.
 1893 *Sapindus hazslinszkii* Ett.: Meschinelli & Squinabol, p. 362.
 1894 *Sapindus haszlinskyi* Ett.: Engelhardt, p. 194, pl. IV, f. 4, 5; pl. V, f. 3.
 1895 *Sapindus hazslinszkii* Ett.: Peola, p. 65 [not seen].
 1896 *Sapindus hazslinszkyi* Ett.: Peola, p. 266.
 1896 *Sapindus(?) hazslinszkii* Ett.: Paolucci, p. 120, pl. XX, f. 146.
 1896 *Sapindus(?) anconitanus* Paolucci, p. 120, pl. XX, f. 147.
 [teste Principi].
 1898 *Sapindus hazslinszkyi* Ett.: Ettingshausen, p. 82.
 1899 *Sapindus hazslinszkyi* Ett.: Peola, p. 49.
 1900 *Sapindus hazslinszkyi* Ett.: Peola, p. 246.
 1903 *Sapindus haslinskyi* Ett.: Menzel, p. 17.
 1911 *Sapindus hazslinszkyi* Ett.: Kafka, pp. 42, 53, 62.
 1914 *Sapindus hazslinszkii* Ett.: Kryshtofovich, p. 594, pl. f. 9.
 1924 *Sapindus hazslinszkii* Ett.: Principi, p. 300, pl. I, f. 9.
 1926a *Sapindus hazslinskii* Ett.: Principi, p. 237, pl. II, f. 25.

R e m a r k s: See *S. dubius*. The correct spelling appears to be *S. hazslinszkyi*.

O c c u r r e n c e: Oligocene: Italy, Bohemia. Miocene: Hungary, Bohemia, Slavonia, Italy, S. Russia.

Sapindus heliconius Unger.

1850 *Sapindus heliconius* Unger, p. 457.
 1852 *Sapindus heliconius* Unger: Maßsalongo, p. 10.
 1860 *Sapindus heliconius* Unger: Unger, p. 34, pl. XV, f. 1—5.
 1861 *Sapindus heliconius* Unger: Ettingshausen, p. 245.
 1861 *Sapindus heliconius* Unger: Andrae, p. 434, pl. I, f. 5.
 1866 *Sapindus heliconius* Unger: Unger, p. 50, pl. XVI, f. 1.
 1866 *Apocynophyllum sessile* Unger, p. 16, pl. IV, f. 20 [teste Ettingshausen, 1870a].
 1866 *Neritinum longifolium* Unger, p. 17, pl. V, f. 4 [teste Ettingshausen, 1870a].
 1870 *Sapindus heliconius* Unger: Vukotinović, p. 204.
 1870a *Sapindus heliconius* Unger: Ettingshausen, pp. 851, 889.
 1874 *Sapindus heliconius* Unger: Schimper, p. 165, pl. C, f. 38.
 1883 *Sapindus heliconius* Unger: Pilar, p. 100, pl. XII, f. 5.
 1904 *Sapindus heliconius* Unger: Engelhardt, p. 353, pl. XCI, f. 12.
 1910a *Sapindus heliconius* Unger: Engelhardt, p. 677, pl. II, f. 13.
 1911 *Sapindus cf. heliconius* Unger: Kafka, p. 42.

1911 *Sapindus heliconius* Unger: Engelhardt, p. 402.
 1921 *Sapindus heliconius* Unger: Principi, p. 91.
 1922 *Sapindus heliconius* Unger: Engelhardt, p. 93, pl. XXXII,
 f. 4.

1926 *Sapindus(?) heliconius* Unger: Principi, p. 71.

Remarks: Heer (1869a, p. 94) suggests that this species
 is very near *S. falcifolius*. Schimper agrees with Ettingshausen
 in including *Neritinium longifolium*.

Occurrence: Eocene: Hessen (Messel near Darmstadt).
 Oligocene; Transylvania (Thalheim), Italy (Chiavon), Bohemia.
 Miocene: Croatia, Bosnia, Greece (Kumi).

Sapindus hispaniolana Berry.

1921 *Sapindus hispaniolana* Berry, p. 122, pl. XXI, f. 3.

Occurrence: Tertiary Dominica.

Sapindus imperfectus Hollick.

1904 *Sapindus imperfectus* Hollick, p. 415, pl. LXXVIII, f. 4.
 1906 *Sapindus imperfectus* Hollick: Hollick, p. 90, pl. XXXIII,

f. 15.

Occurrence: Cretaceous (Magothy); Long Island, N. Y.

Sapindus inconspicuus Saporta.

1865 *Sapindus inconspicua* Saporta, p. 130.

1874 *Sapindus inconspicuus* Saporta: Schimper, p. 164.

Occurrence: Oligocene; France (St. Jean-de-Garguier).

Sapindus inexpectans Knowlton.

1905 *Sapindus inexpectans* Knowlton, p. 144, pl. XVII, f. 7.

Occurrence: Cretaceous (Judith River); Montana.

Sapindus inflexus Lesquereux.

1883 *Sapindus inflexus* Lesquereux, p. 182, pl. XXXII, f. 2.

Occurrence: Miocene; Colorado (Florissant).

[**Sapindus kennediooides** Massalongo.]

1859 *Sapindus kennediooides* Massalongo, p. 93.

Remarks: Nomen nudum.

Sapindus knowltoni Berry.

1916 *Sapindus knowltoni* Berry, p. 274, pl. LXIII, f. 6.

Occurrence: Eocene (Wilcox); Arkansas, Tennessee.

Sapindus lacerus Saporta.

1889 *Sapindus lacerus* Saporta, p. 90, pl. III, f. 10.

Occurrence: Oligocene; Provence (Avignon).

Sapindus lanceolatus Engelhardt.

1922 *Sapindus lanceolatus* Engelhardt, p. 94, pl. XXXI, f. 2:
 pl. XXXII, f. 3.

Occurrence: Eocene: Hessen (Messel near Darmstadt).

Sapindus lancifolius Lesquereux.

1883 *Sapindus lancifolius* Lesquereux, p. 182, pl. XXXII, f. 3—6; pl. XXXVII, f. 9.

1916 *Sapindus lancifolius* Lesquereux: Knowlton, p. 283.

Remarks: Lesquereux considered the reference of his fig. 9, pl. XXXVII to this species as uncertain, and Laurent (1912, p. 204) says "cette feuille n'est certainement pas un *Sapindus*".

Occurrence: Miocene; Colorado (Florissant).

[*Sapindus leguminophyllum* Massalongo.]

1859 *Sapindus leguminophyllum* Massalongo, p. 93.

Remarks: Nomen nudum.

***Sapindus leonis* Cockerell.**

1883 *Sapindus angustifolius* Lesquereux (pars) pl. XXXVII, f. 7.

1908 *Sapindus leonis* Cockerell, p. 102.

Remarks: See *S. angustifolius*.

Occurrence: Miocene; Colorado (Florissant).

***Sapindus lignitum* Unger.**

1860 *Sapindus lignitum* Unger, p. 33, pl. XIV, f. 3—5.

1860 *Trapa globosa* Ludwig, p. 141, pl. LVIII, f. 23—27; pl. LX, f. 2, 4, 7. [teste Schimper].

1861 *Sapindus lignitum* Unger: Ettingshausen, p. 244.

1868 *Sapindus lignitum* Unger: Ettingshausen, p. 877, pl. V, f. 4, 5, 12, 13.

1874 *Sapindus lignitum* Unger: Schimper, p. 165.

1888 *Sapindus lignitum* Unger: Schenk, p. 550, f. 313³.

1903 *Sapindus lignitum* Unger: Menzel, p. 17.

1911 *Sapindus lignitum* Unger: Kafka, p. 42.

Remarks: Founded on fruits, but Ettingshausen referred leaf impressions to the same species. Menzel (1903) mentions leaves from the Bilin basin, in a list only.

Occurrence: Oligocene; Wetterau (Salzhausen), ?Bohemia (Preschen).

***Sapindus linearifolius* Berry.**

1888 *Salix angusta* Lesquereux, p. 13 (non A. Braun, non Heer).

1916 *Sapindus linearifolius* Berry, p. 275, pl. LXIII, f. 2—5; pl. CIX, f. 4.

1922c *Sapindus linearifolius* Berry: Berry, p. 3.

1923 *Sapindus linearifolius* Berry: Trowbridge, p. 91.

Remarks: See also *Sapindus*? (Colani, 1920).

Occurrence: Eocene (Wilcox); Mississippi, Arkansas, Louisiana, Tennessee, Kentucky, Texas.

[*Sapindus longifolius* Heer.]

Synonym of *Sapindus falcifolius*, q. v.

***Sapindus macrophyllus* Saporta.**

1865a *Sapindus macrophylla* Saporta, p. 184.

1874 *Sapindus macrophyllus* Sap.: Schimper, p. 164.

Remarks: Close to *S. heliconius*.

Occurrence: Oligocene; S. France (Armissan).

[*Sapindus macrophyllus* Heer.]Synonym of *Sapindus anceps*, q. v.***Sapindus marylandicus* Hollick.**

1906a *Sapindus marylandicus* Hollick, p. 234, pl. LXXII, f. 11—14.
 Occurrence: Pleistocene (Sunderland); Calvert County, Maryland.

***Sapindus membranaceus* Newberry.**

1868 *Sapindus membranaceus* Newberry, p. 52.
 1874 *Sapindus membranaceus* Newberry: Schimper, p. 168.
 1878b *Sapindus?* *membranaceus* Newb.: Lesquereux, pl. XXIV, f. 2, 3. [not seen].
 1898 *Sapindus?* *membranaceus* Newb.: Newberry, p. 117, pl. XXX, f. 2, 3.
 Occurrence: Eocene (Fort Union); N. Dakota.

***Sapindus merriami* Knowlton.**

1902 *Sapindus merriami* Knowlton, p. 78, pl. IX, f. 5.
 Occurrence: Upper Eocene; Oregon.

***Sapindus mississippiensis* Berry.**

1888 *Sapindus angustifolius* Lesquereux, p. 12.
 1899 *Sapindus angustifolius* Lesq.: Hollick, p. 286, pl. XXXV, f. 5.
 1906 *Sapindus angustifolius* Lesq.: Veatch, pl. XVII, f. 6.
 1916 *Sapindus mississippiensis* Berry, p. 274, pl. LXIII, f. 1; pl. LXIV, f. 10; pl. LXVI, f. 1, 2; pl. CIX, f. 1.
 1917 *Sapindus mississippiensis* Berry: Berry, p. 62.
 1922c *Sapindus mississippiensis* Berry: Berry, p. 2.
 1924 *Sapindus mississippiensis* Berry: Berry, p. 72.

Remarks: Berry (1916, p. 275) compares with this species the Tertiary leaves from Ecuador described by Engelhardt (1895, p. 17) as *Myrciaria tenuifolia*.

Occurrence: Eocene; Mississippi, Louisiana, Arkansas, Kentucky, Tennessee, Alabama.

***Sapindus morrisoni* Lesquereux.**

1882 *Sapindus morisoni* Lesquereux MS.: Heer, p. 96, pl. XL, f. 1; pl. XLI, f. 3; pl. XLIII, f. 1a, b; pl. XLIV, f. 7, 8.
 1883 *Sapindus morrisoni* Lesquereux, p. 83, pl. XVI, f. 1, 2.
 1883 *Sapindus morrisoni* Lesq.: Heer, p. 39, pl. LXV, f. 5.
 1888 *Sapindus morrisoni* Lesq.: Schenk, p. 550.
 1892 *Sapindus morrisoni* Lesq.: Lesquereux, p. 158, pl. XXXV, f. 1, 2.
 1892 *Sapindus morrisoni* Lesq.: Hollick, pl. III, f. 5.
 1893 *Sapindus morrisoni* Lesq.: Hollick, p. 235, pl. VI, f. 3.
 1894a *Sapindus morrisoni* Lesq.: Hollick, p. 57, pl. CLXXIX, f. 8.
 1895 *Sapindus morrisoni* Lesq.: Lesquereux, p. 19, pl. A, f. 11, 12.
 1898 *Sapindus morrisoni* Lesq.: Hollick, p. 422, pl. XXXVI, f. 4.
 1901 *Sapindus morrisoni* Lesq.: Knowlton, p. 317.
 1903 *Sapindus morrisoni* Lesq.: Berry, p. 83, pl. XLVII, f. 2, 3.
 1904 *Sapindus morrisoni* Lesq.: Berry, p. 78.
 1906 *Sapindus morrisoni* Lesq.: Hollick, p. 90, pl. XXXIII f. 16—20.

1906 *Sapindus morrisoni* Lesq.: Berry, pp. 138, 139.
 1912 *Sapindus morrisoni* Lesq.: Berry, p. 396.
 1914 *Sapindus morrisoni* Lesq.: Berry, p. 49, pl. IX, f. 6.
 1917a *Sapindus morrisoni* Lesq.: Berry, p. 186.
 1919 *Sapindus morrisoni* Lesq.: Berry, p. 112.
 1920 *Sapindus morrisoni* Lesq.: Knowlton, p. 191.
 1922a *Sapindus morrisoni* Lesq.: Berry, p. 168.

Occurrence: Upper Cretaceous; Greenland, United States.

Sapindus moskenbergensis Ettingshausen.

1870 *Sapindus moskenbergensis* Ettingshausen, p. 82, pl. V, f. 10.
 1888 *Sapindus moskenbergensis* Ett.: Ettingshausen, p. 342, pl. VIII, f. 12, 13.

Occurrence: Miocene; Styria (Moskenberg).

[**Sapindus multinervis** Heer.]

1869 *Sapindus(?) multinervis* Heer, p. 19, pl. III, f. 11.

Remarks: Friedrich (1883, p. 152) lists this as unidentifiable.

Occurrence: Oligocene; Saxony.

Sapindus munzenbergensis Ettingshausen.

1860 *Magnolia plurinervia* Ludwig, p. 123, pl. XLVII, f. 3 [teste Ettingshausen 1868].
 1868 *Sapindus munzenbergensis* Ettingshausen, p. 877.

1847 *Sapindus munzenbergensis* Ett.: Schimper, p. 166.
 Remarks: Ettingshausen states that this species is closely related to *S. pythia*.

Occurrence: Oligocene; Wetterau (Munzenberg).

[**Sapindus novalensis** Massalongo.]

1859 *Sapindus novalensis* Massalongo, p. 93.

Remarks: Nomen nudum.

[**Sapindus novalensis** Squinabol.]

Synonym of *Sapindus undulatus*, q. v.

Sapindus obesus Hollick.

1924 *Sapindus obesus* Hollick, p. 307, pl. X, f. 1, 2.
 Occurrence: Tertiary; Porto Rico.

Sapindus obtusifolius Lesquereux.

1874 *Sapindus obtusifolius* Lesquereux, p. 419.
 1878a *Sapindus obtusifolius* Lesq.: Lesquereux, p. 266, pl. XLIX, f. 8—11.
 1883 *Sapindus obtusifolius* Lesq.: Lesquereux, p. 181.
 1901a *Sapindus obtusifolius* Lesq.: Knowlton, p. 309.
 1902 *Sapindus obtusifolius* Lesq.: Knowlton, p. 79.
 [1903 *Sapindus obtusifolius* Lesq.: Menzel, p. 17.]
 [1911 *Sapindus obtusifolius* Lesq.: Kafka, p. 42.]
 1916 *Sapindus obtusifolius* Lesq.: Duror, p. 580, f. 8c.
 1923 *Sapindus obtusifolius* Lesq.: Knowlton, p. 166.
 1924 *Sapindus obtusifolius* Lesq.: Knowlton, p. 90, pl. VIII, f. 4.

Remarks: For certain European leaves united with this species, see *S. dimidiatus*. Menzel's and Kafka's references are in lists only and are valueless. See also *Sapindus* sp. (Dawson 1888, p. 35).

Occurrence: Eocene; S. Dakota, Oregon, Colorado.

Sapindus oklahomensis Berry.

1918 *Sapindus oklahomensis* Berry, p. 632, pl. XCV, f. 1, 2.
Occurrence: Upper Miocene; Oklahoma.

Sapindus oligocenicus Principi.

1914 *Sapindus oligocenicus* Principi, p. 184 (nomen).
 1916 *Sapindus oligocenicus* Principi, p. 137, pl. LXIII, f. 11.
Remarks: Referred with some doubt to the genus *Sapindus*. Compared with *S. dalmaticus* and the living *S. saponaria*.
Occurrence: Oligocene; Liguria (S. Giustina).

Sapindus oregonianus Knowlton.

1902 *Sapindus oregonianus* Knowlton, p. 79, pl. XV, f. 3.
 1922 *Sapindus oregonianus* Knowlton: Chaney, pp. 216, 219.
Occurrence: Miocene (Mascall and Fayette); Oregon.

Sapindus oxfordensis Berry.

1916 *Sapindus oxfordensis* Berry, p. 273, pl. LXVII, f. 5.
Occurrence: Eocene; Mississippi.

[**Sapindus oxleyensis** Shirley.]

1898 *Sapindus oxleyensis* Shirley, p. 9, pl. XVI, f. 3.
Remarks: A worthless fragment!
Occurrence: Tertiary; Queensland (near Brisbane).

[**Sapindus pencatianus** Massalongo.]

1851 *Sapindus pencatianus* Massalongo, p. 190.
 1852 *Sapindus pencatianus* Mass.: Massalongo, p. 10, pl. I, f. 1, 2.
 1859 *Sapindus pencatianus* Mass.: Massalongo, p. 93.
 1893 *Sapindus pencatianus* Mass.: Meschinelli & Squinabol, p. 362.
Remarks: According to Massalongo this may be a leaf of his *Aralia elysiorum*, to which it is referred by Principi (1926, p. 89).
Occurrence: Oligocene; Italy (Chiavon and Salcedo).

Sapindus presaponaria Hollick & Berry.

1924 *Sapindus presaponaria* Hollick & Berry, p. 82, pl. VIII, f. 6, 7.
Occurrence: Late Tertiary; Brazil (Bahia).

Sapindus primaevus Squinabol.

1901 *Sapindus primaevus* Squinabol, p. 52, pl. III, f. 8.
Remarks: Near *S. falcifolius* and *S. drepanophyllus*.
Occurrence: Eocene; Italy (Novale).

Sapindus pristinus (Unger) Massalongo.

1849 *Juglans pristina* Unger, p. 350, pl. V, f. 7.
 1850 *Juglans pristina* Unger: Unger, p. 470.
 1851 *Juglans pristina* Unger: Massalongo, p. 202.
 1852 *Sapindus boleensis* Massalongo, p. 12, pl. I, f. 3. (Teste Massalongo 1858b).
 1858b *Sapindus pristina* (Unger) Massalongo, p. 770.
 1859 *Sapindus pristinus* (Unger): Massalongo, p. 92.
 1859 *Sapindus pristinus* (Unger): Heer, p. 277.
 1862 cf. *Sapindus pristinus* (Unger): De la Harpe & Salter, p. 117.
 1893 *Sapindus pristinus* (Unger): Meschinelli & Squinabol, p. 362.

R e m a r k s : Heer (1859, p. 277 note) points out that Unger's original specimen was from Mt. Bolca and not from Oeningen.

The *Juglans pristina* of Braun (in Bruckmann 1850, p. 234, Stizenberger 1851, p. 86, Heer, 1853, p. 147) is not Unger's species, and was renamed *Juglans vetusta* by Heer (1859, p. 90). *S. pristinus* is very close to *S. jalicifolius*.

O c c u r r e n c e : Eocene; Italy (Monte Bolca), ?England (Alum Bay).

Sapindus prodromus Heer.

1872 *Sapindus prodromus* Heer, p. 164 (nomen).
 1874 *Sapindus prodromus* Heer, p. 117, pl. XXXIV, f. 5.
 1882 *Sapindus prodromus* Heer: Heer, p. 96, pl. XXV, f. 5b; pl. XXVI, f. 5a.
 1888 *Sapindus prodromus* Heer: Schenk, p. 550.

O c c u r r e n c e : Upper Cretaceous; Greenland.

Sapindus pseudaffinis Berry.

1916 *Sapindus pseudaffinis* Berry, p. 272, pl. LXVII, f. 6.
 Occurrence: Eocene (Lagrange); Tennessee.

Sapindus pythii Unger.

1848 *Sapindus pythii* Unger, p. 509.
 1850 *Sapindus pythii* Unger: Unger, p. 457.
 1852 *Sapindus pythii* Unger: Massalongo, p. 10.
 1855 *Quercus ettingshausenii* Wessel, in Wessel & Weber, p. 132, pl. XXII, f. 10, 11. [teste Unger].
 1855 *Quercus tenuinervis* Wessel & Weber, p. 133, pl. XXII, f. 9. [teste Unger].
 ?[1855] *Quercus ungeri* Weber: Wessel & Weber, p. 132, pl. XXI f. 11.
 1860 *Sapindus pythii* Unger: Unger, p. 33, pl. XIV, f. 6—17.
 1860 *Rhus elaeodendroides* Unger, p. 45, pl. XXI, f. 1—11 [teste Ettingshausen 1870].
 1860 *Salix media* Ludwig, p. 93, pl. XXVIII, f. 1 [teste Ettingshausen 1868].
 1861 *Sapindus pythii* Unger: Ettingshausen, p. 245.
 1866 *Sapindus pythii* Unger: Unger, p. 51, pl. XVI, f. 6, 7.
 1868 *Sapindus pythii* Unger: Ettingshausen, p. 878.
 1869 *Sapindus pythii* Unger: Unger, p. 147, pl. II, f. 20.
 1869 *Sapindus fraxinifolius* Ettingshausen, p. 26, pl. XLVI, f. 24—26; pl. XLVII, f. 12.
 1870 *Sapindus pythii* Unger: Ettingshausen, p. 82.
 1873a *Sapindus pythii* Unger: Stur, p. 201.
 1874 *Sapindus pythii* Unger: Schimper, p. 165, pl. C, f. 39.
 1874 *Sapindus fraxinifolius* Ett.: Schimper, p. 167.

1876 *Sapindus pythii* Unger: Engelhardt, p. 388, pl. VII (XXII), f. 7—10.
 1877 *Sapindus pythii* Unger: Ettingshausen, p. 190, pl. XV, f. 12.
 1883 *Sapindus pythii* Unger: Pilar, p. 101, pl. XII, f. 9.
 1885 *Sapindus pythii* Unger: Engelhardt, p. 351, pl. XXI, f. 27; pl. XXVIII, f. 3.
 1888 *Sapindus pythii* Unger: Ettingshausen, p. 342.
 1889 *Sapindus pythii* Unger: Meschinelli, p. 288.
 1893 *Sapindus pythii* Unger: Meschinelli & Squinabol, p. 362.
 1893 *Sapindus pythii* Unger: Ettingshausen, p. 332.
 1896 *Sapindus pythii* Unger: Ettingshausen, p. 493, pl. IV, f. 1.
 1898 *Sapindus pythii* Unger: Engelhardt, p. 105.
 1901 *Sapindus pythii* Unger: Squinabol, p. 55.
 1911 *Sapindus pythii* Unger: Kafka, pp. 53, 62.
 1914 *Sapindus pythii* Unger: Engelhardt, p. 303, pl. XIV, f. 7.
 1914 *Sapindus pythii* Unger: Principi, p. 184.
 1916 *Sapindus pythii* Unger: Principi, p. 136, pl. LXIII, f. 9.
 1922 *Sapindus pythii* Unger: Engelhardt, p. 92, pl. XXXI, f. 8.

Remarks: We have provisionally included *S. fraxinifolius* Ett. in this species. The differences given by Ettingshausen are slight, and Schimper remarks: "voisin du *S. pythii*, attribution incertaine". In any case the name *S. fraxinifolius* had been previously used by De Candolle and by Blume.

Quercus ungeri Weber is included in the synonymy on the authority of Schimper, who gives an inaccurate reference, which is copied by later authors. Unger only includes *Q. ettingshausenii* and *Q. tenuinervis*, but the former is described as *Q. ungeri* on Wessel & Weber's plate.

Unger refers the specimen he figures from Radoboj in 1869 doubtfully to *S. pythii*.

Ettingshausen includes one of the specimens figured by Ludwig as *Salix media*, and also Unger's *Rhus elaeodendroides*.

Occurrence: Eocene; Hessen (Darmstadt), Italy (Novale). Oligocene; Italy, Carniola (Sagor). Miocene; Styria (Parschlug, Moskenberg), Croatia (Radoboj, Sused), Bohemia (Bilin etc.), Hessen (Vogelsberg).

Sapindus radobojanus Unger.

1866 *Sapindus radobojanus* Unger, p. 51, pl. XVII, f. 12, 13.
 1874 *Sapindus radobojanus* Unger: Schimper, p. 167.
 1877 *Sapindus radobojanus* Unger: Heer, p. 172, pl. LXX, f. 16.
 1879 *Sapindus radobojanus* Unger: Sieber, p. 242.
 1881a *Sapindus radobojanus* Unger: Engelhardt, p. 155.
 1883 *Sapindus radobojanus* Unger: Pilar, p. 101.
 1911 *Sapindus radobojanus* Unger: Kafka, pp. 29, 42.

Remarks: Very near to *S. falcifolius*, (Schimper), and might be united with it (Pilar).

Occurrence: Miocene; Croatia, Bohemia (Bilin basin).

Sapindus rocklandensis Knowlton.

1918 *Sapindus rocklandensis* Knowlton, p. 331, pl. XC VIII, f. 4.
Occurrence: Eocene (Raton); Colorado.

Sapindus rotarii Massalongo.

1858a *Sapindus rotarii* Massalongo, p. 102 [Not seen].
 1858 *Sapindus rotarii* Mass.: Massalongo & Scarabelli, p. 359, pl. XIV, f. 4; pl. XLIV, f. 8.

1874 *Sapindus rotarii* Mass.: Schimper, p. 168.
 1885 *Sapindus rotarii* Mass.: Sacco, p. 277.
 1893 *Sapindus rotarii* Mass.: Meschinelli & Squinabol, p. 363.
 1895 *Sapindus(?) rotarii* Mass.: Peola, p. 66 [not seen].
 1896 *Sapindus(?) rotarii* Mass.: Paolucci, p. 119, pl. XX, f. 145.
 1921 *Sapindus rotarii* Mass.: Principi, p. 92.
 1926 *Sapindus rotarii* Mass.: Principi, p. 74.
 1926a *Sapindus(?) rotarii* Mass.: Principi, p. 238, pl. IV, f. 22.
 Occurrence: Oligocene to Pliocene; Italy.

[***Sapindus salicifolius***.]

1908 "Sapindus salicifolius Heer": Lauby, p. 156.

Remarks: Probably a misprint for *S. falcifolius*.

[***Sapindus salicopsis*** Massalongo.]

1859 *Sapindus salicopsis* Massalongo, p. 93.

Remarks: Nomen nudum.

[***Sapindus saponaria*** Linnaeus.]

Hollick (1924, p. 280) gives translated extracts from an extraordinary paper by P. Galtes on some fossil woods of Cuba. Galtes' method was unique: by a study of the relative specific gravity of recent and silicified woods, he identified 57 trees, all referred to living species. Among these was *Sapindus saponaria*, but the matter is only mentioned here as one of the curiosities of palaeobotanical literature.

***Sapindus cf. saponaria* Linn.**

1926 *Sapindus cf. saponaria* Linn.: Hofmann, pp. 156—7, fig. 9a, b.

Remarks: This is the only instance, so far as we know, in which the cuticular structure of a fossil sapindaceous leaf has been described. The authoress states that a leaf figured by her recalls that of the living *S. saponaria*, and that the histological structure of the two is identical. Her figures of the epidermis certainly show a close resemblance, but are rather too diagrammatic, and not very detailed. She does not compare her leaf with any Miocene species, although she states (p. 160) that 48 specimens of *Sapindus* were found. The outline drawing (fig. 9a) of an incomplete leaf, without venation, can scarcely be identified, and might be compared with several of the described fossil species.

Occurrence: Lower Miocene; Styria (St. Kathrein).

***Sapindus saxonicus* Engelhardt.**

1891b *Sapindus saxonicus* Engelhardt, p. 101, pl. II, f. 14.

1896 *Sapindus cf. saxonicus* Engelhardt: Krasser, p. 132, pl. XIV, f. 5.

Occurrence: Upper Cretaceous; Saxony (Niederschöna), Moravia (Kunstadt).

[***Sapindus scytinophyllus*** Massalongo.]

1859 *Sapindus scytinophyllus* Massalongo, p. 92.

Remarks: Nomen nudum.

Sapindus stellariaefolius Lesquereux.

1878a *Sapindus stellariaefolius* Lesquereux, p. 264, pl. XLIX, f. 1.
 1908 *Sapindus stellariaefolius* Lesq.: Cockerell, p. 101.
 1908a *Sapindus stellariaefolius* Lesq.: Cockerell, p. 121, text-fig.
 unnumb.

Occurrence: Miocene; Colorado (Florissant).

Sapindus subfalcifolius Ettingshausen.

1887 *Sapindus subfalcifolius* Ettingshausen, p. 171, pl. V, f. 3; pl. VI, f. 2.
 1890 *Sapindus subfalcifolius* Ett.: Ettingshausen, p. 281, pl. XXVIII, f. 3; pl. XXIX, f. 2.
 Occurrence: Tertiary (Eocene?); New Zealand.

Sapindus tasmanicus Ettingshausen.

1883 *Sapindus tasmanicus* Ettingshausen, p. 139, pl. VI, f. 8.
 1883a *Sapindus tasmanicus* Ett.: Ettingshausen, p. 155.
 1888a *Sapindus tasmanicus* Ett.: Ettingshausen, p. 62, pl. VI, f. 8.
 1888 *Sapindus tasmanicus* Ett.: Johnston, pp. 248, 285, pl. XLV, f. 8.

Occurrence: Tertiary; Tasmania.

[**Sapindus tenuinervis** Krasser.]

1903 *Sapindus tenuinervis* Krasser, p. 857.
 Remarks: MS. name of Ettingshausen. Nomen nudum.
 Occurrence: Brazil.

Sapindus undulatus (Al. Braun).

1850 *Juglans undulatus* Al. Braun in Bruckmann, p. 234.
 1851 *Sapindus? undulatus* Al. Braun in Stizenberger, p. 87.
 1859 *Sapindus undulatus* (A. Br.): Heer, p. 62, pl. CXXI, f. 3—7.
 1861 *Sapindus undulatus* (A. Br.): Ettingshausen, p. 245.
 1874 *Sapindus undulatus* (A. Br.): Schimper, p. 164.
 1877 *Sapindus undulatus* (A. Br.): Ettingshausen, p. 189, pl. XV, f. 13.
 1881 *Sapindus undulatus* (A. Br.): Engelhardt, p. 310, pl. XVI, f. 21.
 1883a *Sapindus undulatus* (A. Br.): Heer, p. 127, pl. LXXXIV, f. 1—3.
 1883 *Sapindus undulatus* (A. Br.): Steger, p. 24.
 1888 *Sapindus undulatus* (A. Br.): Schenk, p. 550, 551.
 1889 *Sapindus undulatus* (A. Br.): Meschinelli, p. 287.
 1893 *Sapindus undulatus* (A. Br.): Keller, p. 107, pl. XIII, f. 4.
 1901 *Sapindus novalensis* Squinabol, p. 51, pl. III, f. 6.
 1903 *Sapindus undulatus* (A. Br.): Menzel, p. 17.
 1911 *Sapindus undulatus* (A. Br.): Kafka, pp. 42, 62.
 1913 *Sapindus undulatus* (A. Br.): Engelhardt, p. 393, pl. I, f. 16.
 1914 *Sapindus undulatus* (A. Br.): Principi, p. 184.
 1916 *Sapindus undulatus* (A. Br.): Principi, p. 134, pl. LXIII, f. 13.
 1921 *Sapindus undulatus* (A. Br.): Principi, p. 91.
 1922 *Sapindus undulatus* (A. Br.): Engelhardt, p. 94, pl. XXIX, f. 2.

1926 *Sapindus undulatus* (A. Br.): Principi, p. 72, pl. VI, f. 24; pl. VIII, f. 11.

Remarks: We have included *S. novaleensis* Squinabol here, as it is indistinguishable from *S. undulatus*. Squinabol himself notes the close resemblance, and moreover the name *S. novaleensis* had been previously used by Massalongo.

The specimen from the Eocene of Mississippi identified by Lesquereux (1869, p. 420) as *S. undulatus* has been named *Eugenia hilgardiana* by Berry (1916, p. 318).

See also *Phyllites* sp.

Occurrence: Eocene; Italy (Novale), Hessen (Darmstadt). Oligocene; Italy (Mt. Piano, Chiavon), Bohemia (Preschen), Carniola (Sagor). Miocene; Baden & Switzerland (Oeningen, St. Gallen), Bosnia, Bohemia (Grasseth), Silesia.

Sapindus ungeri Ettingshausen.

1851 *Cassia phaseolites* Unger, p. 188, pl. LXVI, f. 1—7.
 1860 *Sapindus ungeri* Ettingshausen MS.: Unger, p. 34, pl. XX, f. 1—6.
 1861 *Sapindus ungeri* Ett.: Ettingshausen, p. 245.
 1864 *Cassia phaseolites* Unger: Unger, p. 29, pl. X, f. 1—3.
 1870 *Sapindus ungeri* Ett.: Unger, p. 12, pl. IV, f. 11, 12, 12*.
 1870a *Sapindus ungeri* Ett.: Ettingshausen, p. 889, pl. II, f. 9.
 1874 *Sapindus ungeri* Ett.: Schimper, p. 166.
 1883 *Sapindus ungeri* Ett.: Halavats, p. 173.
 1883 *Sapindus ungeri* Ett.: Pilar, p. 102.
 1884 *Sapindus ungeri* Ett.: Schafarzik, p. 128.
 1885 *Sapindus ungeri* Ett.: Sacco, p. 277.
 1888 *Sapindus ungeri* Ett.: Ettingshausen, p. 342.
 1896 *Sapindus ungeri* Ett.: Ettingshausen, p. 493, pl. III, f. 5.
 1901 *Sapindus ungeri* Ett.: Squinabol, p. 55.
 1903 *Sapindus ungeri* Ett.: Squinabol, p. 55.
 1904 *Sapindus ungeri* Ett.: Engelhardt, p. 352, pl. LXXXVII, f. 19.
 1921 *Sapindus ungeri* Ett.: Principi, p. 91.
 1926 *Sapindus ungeri* Ett.: Principi, p. 73, pl. II, f. 7.

Remarks: Ettingshausen unites with this species the specimens of *Cassia phaseolites* figured by Unger from Radoboj, which he considers to be quite distinct from *C. phaseolites* from Sotzka.

Engelhardt includes *S. ungeri* in the synonymy of *S. falcifolius* (see the remarks on that species). Unger at first referred *S. graecus* to *S. ungeri*. Pilar includes part of *S. erdöbényensis* as figured by Unger (1870, pl. IV, f. 14). Principi considers that *S. ungeri* is near *S. cupanioides*.

Occurrence: Eocene; Italy (Novale). Oligocene; Italy (Chiavon), Hungary. Miocene; Hungary, Bosnia, Croatia (Radoboj). Pliocene; Italy (Astiano).

[Sapindus urophyllus Massalongo.]

1859 *Sapindus urophyllus* Massalongo, p. 93.

Remarks: Nomen nudum.

Sapindus variabilis Berry.

1919 *Sapindus variabilis* Berry, p. 111, pl. XXVII, f. 1—3.

Occurrence: Cretaceous (Tuscaloosa); Alabama.

Sapindus vellavensis Saporta.

1878 *Sapindus vellavensis* Saporta, p. 50, pl. VI, f. 5, 6.

1910 *Sapindus vellavensis* Sap.: Lauby, p. 372.

Remarks: Near *S. graecus*, according to Saporta.

Occurrence: Eocene (Bartonian); France, Haute-Loire (Brives).

Sapindus wardii Knowlton.

1899 *Sapindus wardii* Knowlton, p. 738, pl. XCVIII, f. 1, 2; pl. XCIX, f. 5.

Occurrence: Eocene (Fort Union); Yellowstone National Park.

Sapindus winchesteri Knowlton.

1923 *Sapindus winchesteri* Knowlton, p. 167, pl. XXXVIII, f. 1.

Occurrence: Eocene; Colorado (Rio Blanco County).

Sapindus yeguanus Berry.

1924 *Sapindus yeguanus* Berry, p. 73, pl. XII, f. 6; pl. XLIII, f. 1, 2.

Occurrence: Eocene (Yegua, Lisbon); Texas, Mississippi.

Sapindus zovencedi Massalongo.

1858 *Sapindus zovencedi* Massalongo, p. 16.

1859 *Sapindus zovencedi* Mass.: Massalongo, p. 93.

1893 *Sapindus zovencedi* Mass.: Meschinelli & Squinabol, p. 363.

Occurrence: Oligocene; Italy (Vicentino).

Sapindus sp.

1757 *Sapindus* sp.: Parsons, p. 168, pl. VI, f. 25, 33.

Occurrence: Lower Eocene; England (Sheppey).

Sapindus sp.

1879 *Sapindus* sp.: Dawson, p. 187B.

Occurrence: Oligocene; S. British Columbia.

Sapindus sp.

1888 *Sapindus* sp. cf. *S. obtusifolia* Lesq.: Dawson, p. 35.

Occurrence: No locality nor horizon given. In a collection "from the Belly River Series, and the Lower and Upper Laramie", Canada.

Sapindus sp.

1897 *Sapindus* sp.: Stanton & Knowlton, p. 142.

1919 *Sapindus* sp.: Knowlton, p. 582.

Occurrence: Eocene; Wyoming.

Sapindus sp.

1906 *Sapindus* sp.: Krasser, p. 42.

Occurrence: Senonian; L. Austria (Grünbach).

Sapindus sp.

1908 *Sapindus* sp.: Taeger, p. 205, pl. III, f. 10.

Occurrence: Lower Eocene; Hungary (Tatabanya).

Sapindus sp.

1908a *Sapindus* sp.: Knowlton, p. 25.

Occurrence: Upper Cretaceous (Mesaverde); Colorado.

Sapindus sp.

1912 *Sapindus* sp.: Knowlton, p. 481.

Occurrence: Eocene (Fort Union); Wyoming.

Sapindus sp.

1921 *Sapindus* sp.: Chaney, p. 91.

Remarks: We do not know whether this "new species" has been named and described. Some of Chaney's papers, though published in 1920 and 1924, have not yet reached England (October 1927).

Occurrence: Miocene (Monterey Group); S. California.

? Sapindus sp.

1908 ?*Sapindus* sp.: Knowlton, p. 34.

Occurrence: Tertiary; Alaska.

Sapindus ? sp.

1924a *Sapindus* ? sp.: Berry, pp. 87, 90.

Occurrence: Eocene; Central Texas.

Sapindus ?

1858c *Sapindus*?: Massalongo, p. 186, pl. V, f. 4.

Remarks: Too fragmentary for determination.

Occurrence: Upper Eocene; Italy (Monte Pastello).

Sapindus ?

1897 *Sapindus*?: Almera, p. 160.

Occurrence: Pliocene; Spain (Tarragona, Espluga).

Sapindus ?

1920 Phyllites cf. *Sapindus linearifolius* Berry (?): Colani, p. 470, f. 55.

Occurrence: Pliocene; Indochina (Muong-peun).

Sapindus ?

1922 Undetermined Leaflet, Berry, p. 186, pl. VIII, f. 2.

Remarks: Compared by Berry with *Sapindus* and *Cedrela*.

Occurrence: Pliocene; Bolivia (Pislypampa).

Sapindus ?

1923 Phyllites coloradensis Knowlton, p. 176, pl. XXXVIII, f. 3.

Remarks: A possible relationship with *Sapindus* is suggested.

Occurrence: Eocene; Rio Blanco County, Colorado.

Schmidelia Linnaeus.

Schmidelia bejucensis Berry.

1918a *Schmidelia bejucensis* Berry, p. 37, pl. XVII, f. 4.

Occurrence: Oligocene? (Culebra and Caimito formations); Panama canal zone.

Schmidelia eduliforma Berry.

1925 *Schmidelia eduliforma* Berry, p. 210, pl. III, f. 7.

Remarks: Fruiting spike.

Occurrence: Miocene; Patagonia.

Schmidelia graciliforma Berry.

1925 *Schmidelia graciliforma* Berry, p. 209, pl. VI, f. 2, 3.

Occurrence: Miocene; Patagonia.

Schmidelia proedulis Berry.

1925 *Schmidelia proedulis* Berry, p. 211, pl. I, f. 3.

Remarks: "This species is, unfortunately, based upon the single incomplete specimen figured, which is altogether insufficient for a proper diagnosis" (Berry).

Occurrence: Miocene; Patagonia (Chubut).

Schmideliopsis Felix.

Schmideliopsis zirkeli Felix.

1882 *Schmideliopsis zirkeli* Felix, p. 72.

1883 *Schmideliopsis zirkeli* Felix: Felix, p. 16, pl. II, f. 6, 8.
Remarks: Wood. Structure agrees, according to Felix, with that of *Schmidelia haemorrhoa*.

Occurrence: Miocene; Antigua.

Stocksia Bentham.

[**Stocksia ?**]

1915 *Stocksia*?; C. & E. M. Reid, p. 112, pl. XI, f. 17.

Remarks: A seed, compared with the living *Stocksia* and *Koelreuteria*. This view was abandoned later.

Occurrence: Pliocene; Holland (Tegelen, Reuver); Belgium (Raevels).

Thouinia Poiteau.

Thouinia occidentalis Engelhardt.

1922 *Thouinia occidentalis* Engelhardt, p. 95, pl. XXXI, f. 1.

Occurrence: Upper Eocene; Hessen (Messel near Darmstadt).

[**Thouinia philippii** Engelhardt.]

Synonym of *Cupania grosse-serrata*, q. v.

Trematocaryon Mueller, 1871 (June), p. 48.[**Trematocaryon mclellani** Mueller.]1871 (June) *Trematocaryon mclellani* Mueller, p. 48, pl. III, f. 1—17.1874a *Trematocaryon mclellani* Mueller, p. 12, pl. III.Remarks: Stated to be possibly *Sapindaceae*, but also compared with *Verbenaceae*.

Occurrence: Pliocene; Victoria.

Tricoilocaryon Mueller, 1878, p. 35.Remarks: In 1878 von Mueller stated that "possibly this genus may prove referable to *Sapindaceae*", but in 1883 he omitted this remark.[**Tricoilocaryon barnardi** Mueller.]1878 (March) *Tricoilocaryon barnardi* Mueller, p. 35, pl. XIV, f. 1—4.1883 *Tricoilocaryon barnardi* Mueller: Mueller, p. 7, pl. XIV, f. 1—5.

Occurrence: Pliocene; New South Wales.

Wilkinsonia Mueller, 1877 (Sept.), p. 37.Remarks: "May perhaps have belonged to the order of *Sapindaceae*".[**Wilkinsonia bilaminata** Mueller.]1877 (Sept.) *Wilkinsonia bilaminata* Mueller, p. 37, pl. XIII, f. 1—6.1879 *Wilkinsonia bilaminata* Mueller: Mueller, p. 170, pl. III, f. 4.1883 *Wilkinsonia bilaminata* Mueller: Mueller, p. 7, pl. XIII.

Occurrence: Pliocene; New South Wales.

Xanthoceras Bunge.**Xanthoceras antiqua** Friedrich.1883 *Xanthoceras antiqua* Friedrich, p. 196, pl. XX, f. 10b; pl. XXVI, f. 6.

Occurrence: Oligocene; Saxony.

Summary of Genera.

The first figure includes the more or less authentic species; the number in brackets gives the synonyms, nomina nuda etc.

<i>Aphania</i>	Blume	.	.	.	1
<i>Aporrhiza</i>	Radlkofler	.	.	.	1
<i>Carpolithus</i>	Linnaeus	.	.	.	4+[3]
<i>Chytranthus</i>	Hooker f.	.	.	.	1
<i>Conchotheca</i>	Mueller	.	.	.	[1]
<i>Cupania</i>	Linnaeus	.	.	.	4+[20]
<i>Cupanites</i>	Schimper	.	.	.	14
<i>Cupanoides</i>	Bowerbank	.	.	.	10+[3]
<i>Deinbollia</i>	Schumacher	.	.	.	3
<i>Djambioxylon</i>	Kräusel	.	.	.	1
<i>Dodonaea</i>	Linnaeus	.	.	.	21+[7]
<i>Dodonaeites</i>	Saporta	.	.	.	1
<i>Enourea</i>	Aublet	.	.	.	1
<i>Eriocoelum</i>	Hooker f.	.	.	.	2
<i>Euphorbia</i>	Comm. ex Jussieu	.	.	.	[2]
<i>Euphorbiaecarpum</i>	Menzel	.	.	.	1
<i>Euphorbiopsis</i>	Massalongo	.	.	.	3+[1]
<i>Fraasia</i>	Unger	.	.	.	1
<i>Glossolepis</i>	Gilg	.	.	.	1
<i>Koelreuteria</i>	Laxmann	.	.	.	9+[5]
<i>Lychnodiscus</i>	Radlkofler	.	.	.	2
<i>Nephelites</i>	Deane	.	.	.	6+[1]
<i>Nephelium</i>	Linnaeus	.	.	.	2
<i>Pancovia</i>	Willdenow	.	.	.	2
<i>Paullinia</i>	Linnaeus	.	.	.	7+[6]
<i>Pentacoila</i>	Mueller	.	.	.	[1]
<i>Penteune</i>	Mueller	.	.	.	[4]
<i>Phialodiscus</i>	Radlkofler	.	.	.	1
<i>Phyllites</i>	Brongniart	.	.	.	[1]
<i>Phymatocaryon</i>	Mueller	.	.	.	[3]
<i>Sapindoides</i>	Perkins	.	.	.	9
<i>Sapindophyllum</i>	Ettingshausen	.	.	.	11+[3]
<i>Sapindopsis</i>	Fontaine	.	.	.	4+[6]
<i>Sapindoxyton</i>	Kräusel	.	.	.	1
<i>Sapindus</i>	Tourn. ex Linnaeus	.	.	.	86+[46]
<i>Schmidelia</i>	Linnaeus	.	.	.	4
<i>Schmideliopsis</i>	Felix	.	.	.	1
<i>Stocksia</i>	Bentham	.	.	.	[1]
<i>Thouinia</i>	Poiteau	.	.	.	1+[1]
<i>Trematocaryon</i>	Mueller	.	.	.	[1]
<i>Tricilocaryon</i>	Mueller	.	.	.	[1]
<i>Wilkinsonia</i>	Mueller	.	.	.	[1]
<i>Xanthoceras</i>	Bunge	.	.	.	1
					217+[118]

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